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THE UNIVERSITY OF ALBERTA

POST-SECONDARY EDUCATIONAL OPPORTUNITIES FOR DEAF/HEARING IMPAIRED STUDENTS IN CANADA

by

P. COLLEEN HIRON

(C)

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE

OF MASTER OF EDUCATION

IN

SPECIAL EDUCATION (HEARING IMPAIRED)

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

EDMONTON, ALBERTA

FALL, 1988

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled POST-SECONDARY EDUCATIONAL OPPORTUNITIES FOR DEAF/HEARING IMPAIRED STUDENTS IN CANADA submitted by PATRICIA COLLEEN HIRON in partial fulfilment of the requirements for the degree of Master of Education.

Supervisor

Date 14th October 1988

ABSTRACT

This study surveyed the availability of special services for deaf/hearing impaired students attending post-secondary institutions in Canada. These included: oral and sign language interpreters, notetakers, tutors, counsellors, full and part-time deaf/hearing impaired students attending, admission and English language requirements, special programs, special classes and those conducted in sign language. Information regarding financial assistance, extra curricular activities, apprenticeships and worksites, as well as the availability of audiological, hearing aid and technical equipment was obtained.

One-hundred and forty seven degree granting, technical and vocational institutions in all provinces, the Yukon and Northwest Territories responded.

The type of post-secondary institution was a factor in the availability of interpreting services and special programs for deaf/hearing impaired students. The study concluded that few deaf/hearing impaired students attend post-secondary institutions in proportion to their normally hearing peers. While many issues may be involved the lack of necessary services, facilities and resources to give educational assistance has a limiting affect for these students.

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CHAPTER 1

INTRODUCTION

The deaf/hearing impaired have been traditionally underemployed. Austin (1983) claimed that only 61.3% of deaf people were in the labour force. Of these only 10% were in technical and professional fields, the remaining were in unskilled or semi-skilled fields. Further, many of those in the professional group were adventitiously rather than prelingually deaf, were often invisible to the public at large and had little or no contact with the deaf community. Educationally the deaf/hearing impaired are disadvantaged. Trybus and Karchmer (1977) reporting on the school achievement scores of deaf/ hearing impaired school leavers found that over half read at less than a mid-fourth grade level. That is below or barely at newspaper literacy level. The highest achieving group of 10% obtained a grade equivalency of 8.1, the mean for hearing children of 14 years. At 9 years hearing impaired children were about 1 1/2 years behind their hearing peers, by 14 years this deficit increased to 5 years. Wolk and Allen (1984) and Crandall (1978) supported this finding stating that deaf children attending special schools or classes demonstrated little growth in reading achievement between 13 and 20 years, indeed in elementary through secondary grades most progress 1/3 of a grade equivalent per year.

Trybus and Karchmer (1981) found that math scores show similar deficits. Only about 10% of hearing impaired have computational

skills that were equivalent to their normal peers. The average 20 year old scored just below the eighth grade level. They further concluded that the overwhelming majority of hearing impaired students leave school in the late teens at a very substantial educational disadvantage compared to their hearing age-mates.

Siddway (1986) in assessing the educational and employment opportunities for hearing impaired adults in British Columbia found that funding for support services such as interpreting, notetaking and technical aids was not available for most students. Because of the special needs these services are essential for deaf/hearing impaired to enjoy full access to appropriate public post-secondary opportunities. She recommended that trained personnel provide on-site experts to assess students aptitudes and strengths, to analyze course prerequisites to ensure that students are not screened out of selected training programs by unreasonably strict entrance requirements, and that students be allowed to prove themselves during training.

A number of recommendations critical to hearing impaired adults were made by Judge Rosalee Abella who headed the Royal Commission on Equality in Employment (1984). These included: (a) that educational facilities and training centres should be accessible in all respects to disabled persons; (b) that educational requirements for training programs should be evaluated for relevancy and that determination of eligibility for these

training programs should be based on aptitude rather than on previous educational requirements, (c) that the federal government in consultation with provincial governments develop a national, coordinated policy on adult basic education, (d) that post-secondary institutions and training programs mandated directly to improve the labour market opportunities should be required to increase the participation of designated disadvantaged groups including the disabled.

Further study in this area is necessary to determine what facilities and resources already exist and can be made available for the deaf/hearing impaired at post-secondary institutions in Canada. However, it appears that if education is made available to this population it will improve employment opportunities and the quality of their life.

Definitions of Terms

The following provides definitions of the terminology used in this study.

Deaf/deafness

For educational purposes the term "deaf" or "deafness" usually refers to an average unaided puretone hearing loss of greater than 75 dB through the speech range (200 Hertz, 1000 Hertz and 2000 Hertz) in the better ear using the American National Standards Institute (ANSI) criteria (Davis and Silverman 1978 p.434, Appendix

A). In traditional terms it refers to a severe or complete loss of sensitivity (Davis and Silverman 1970 p.499).

Hearing Impairment

Hearing Impairment is a term meaning both hard of hearing and deaf. According to Moores (1981) distinction is made between the two to differentiate between those for whom the auditory channel is affected but functional and those for whom the sense of hearing is primarily non-functional as the primary modality for language development. The hearing loss may range from mild (25 dB) to profound (91 dB or greater) through the speech frequencies from 500 to 2000 Hertz. Wick (1982) further defined hearing impairment as a hearing loss that hampered the educational process and that some assistance would be sought if it were available.

Open Enrollment Policy

Institutions accept students having a diploma or General Educational Diploma (GED) equivalency certificate from an accredited high school (The College Blue Book, 1985).

Prelingually Deaf

Prelingually deaf refers to a hearing loss present at birth or prior to the development of speech or language at two to three years of age as opposed to the adventitiously deaf who lose their hearing after language is established.

Telecommunication Device for the Deaf (TDD)

Telecommunication devices for the deaf (TDD) include any devices such as a teletypewriter (TTY) or visual ear that allows the deaf/hearing impaired people access to the public telephone network by enabling them to type and read messages transmitted over the telephone lines rather than to speak and hear in the usual manner (Minister of Supply and Services Canada in Obstacles, 1985, p.xix).

Television Captioning

Television captioning provides subtitles similar to those on foreign films which appear on the television screen allowing hearing impaired viewers to read what is being said on the program. An "open" captioning system allows all viewers to see the subtitles a "closed" system is seen only by those viewers whose television sets are specially adapted or equipped to show the captions.

> A closed captioning operates through the imposition of electronically encoded visual subtitles in a portion of the television picture that is normally not seen (on Line 21 of the vertical blanking interval). The encoded material is transmitted by the television station along with the regular audio and visual portions of the program, but becomes visible only when decoded by a special device either attached to or built into the TV receiver. (Minister of Supply and Services Canada in Obstacles, 1985, p. xxiii)

CHAPTER 2

REVIEW OF THE LITERATURE

Introduction

In 1982 Wick surveyed Canadian Universities to determine the number of deaf/hearing impaired students in attendance. His estimates included 26 full-time and 2 part-time in undergraduate studies, 6 full-time and 5 part-time in post graduate courses. These numbers were deemed to be underestimates. Then as now institutes were not permitted to ask students whether they were handicapped and had the information only if the student volunteered it. In addition to the above Gallaudet College an accredited liberal arts college for the hearing handicapped in Washington, D.C. had 96 Canadian students registered for the spring of 1982; California State at Northridge had an additional one from Alberta. The breakdown was as follows: British Columbia, three, Alberta, eight, Saskatchewan, ten, Manitoba, five, Ontario, forty-four, Quebec, seven, Nova Scotia, six and Prince Edward Island, one. Although the information collected was too incomplete to ascertain the major area of study and level in each program, it was reported that undergraduates were involved in a wide variety of fields excluding engineering and that graduates were studying primarily teaching or counselling the deaf. Wick also approximated that 100 deaf/hearing impaired students were attending four community colleges which have special support services for this population. These programs were located in Vancouver, Edmonton, Winnipeg and

Toronto. Wick's survey of all major schools for the deaf failed to ascertain the number of students preparing for post-secondary opportunities. He concluded that many of the Canadians attending Gallaudet and the majority of deaf/hearing impaired students attending Canadian Universities either did not attend a major school for the deaf or transferred from the former to the latter without the school being aware of it. Statistics received from the schools for the deaf failed to provide reliable estimates of the students' educational potential. He further disclosed that in 1982 no school for the deaf in Canada provided the full equivalent of an academic track high school education which is necessary in many instances for entrance into universities, technical schools and colleges. (This track is now available at Alberta School for the Deaf, Edmonton, AB.)

A study in 1984 sponsored by the Canadian Association of the Deaf (CAD) and conducted by Wick focussed on giving the deaf/hearing impaired input into educational programs for the deaf. Presumably the deaf understand their own needs and the optimum methods to achieve their educational goals. The researchers estimated that there were 35 deaf/hearing impaired students in Canadian Universities with an additional 110 in Gallaudet, 40 of whom were in graduate studies. In 1982 and again in 1984 Wick expressed concern that a larger percentage of students would obtain a higher education in Canada if support services such as sign

language interpreters, notetakers and counsellors were available. Many deaf/hearing impaired students also need further academic preparation before they are ready to enter post-secondary institutions and often fail to apply for higher education because they feel themselves inadequately prepared. Alternate entrance requirements could provide a partial solution.

Considerations of Entrance Requirements

Before the enactment of P.L.94-142 and the Rehabilitation Act of 1973 post-secondary institutions receiving U.S. federal funds were under no obligation to provide for the needs of handicapped students including the deaf/hearing impaired (Allen & Osborn, 1984; McLoughlin, 1982). A 1969 study of policies and attitudes of admissions officers in New england colleges and universities revealed that generally the admittance policy toward deaf/hearing impaired students who could talk was somewhat negative and toward those who could not talk policies were definitely restrictive. The major reasons given were: (a) inadequate facilities to meet the needs of the deaf, smaller institutions do not have the finances necessary to make modifications, (b) faculty not trained to work with the deaf, (c) too dangerous for deaf to work in the scientific and technical fields requiring the use of machines and equipment. Goldin, Margolin and Stotsky (1969) found that the attitude and misinformation by admissions officers about the needs and abilities of the deaf/hearing impaired was possibly the major difficulty and

that education of administrators was the most pressing one. "There were, therefore, two primary obstacles: (a) funding for special programs and facilities and (b) attitudes of those in authority. At the time of the study only 34 of 137 institutions of higher learning in the United States reported having experience with deaf/hearing impaired applicants.

Post-secondary entrance requirements for deaf/hearing impaired students requires special consideration. Math, reading and language deficits exist in this population. The greater the hearing loss the greater the communication problem both in receptive and expressive language (Meadow, 1980; Quigley, 1979; Stark, 1979). Scores on cognitive ability tests while usually within normal range generally show a mean score somewhat lower than those of hearing children (Anderson and Sisco, 1977; Meadow,1980; Mindel and Vernon, 1971). Because deaf/hearing impaired children are unable to hear and imitate language they are slower to acquire communication skills.

Children of deaf parents will likely learn ASL as a first language. For these students English is a second language, and their cognitive development progresses similarly to that of their normally hearing peers. However, over 90% of the deaf/hearing impaired population have hearing parents. Their first exposure to language is likely spoken English. They may or may not learn sign language or some combination of signed and spoken English depending

upon decisions made by their parents or educators. These factors influence their cognitive development, language, reading and math abilities (Bennett and Ragosta, 1984; Meadow 1980).

In addition to delays in language development and school achievement deaf/hearing impaired students are often characterized by slower social development. Reduced opportunities for social interactions the result of language deficits may result in isolates within the family, peer groups and the educational environment. Hearing parents of deaf/hearing impaired children may be overly protective failing to encourage necessary independence and the freedom to make decisions (Stein, Mindel and Jabaley, 1981; Meadow, 1980). Emotional/behavioral problems in deaf/hearing impaired children are said to be significantly higher than in hearing peers with serious emotional problems being three-to-six times more prevalent than in the hearing population (Bennett and Ragosta, 1984). All of the above mentioned factors may negatively influence their post-secondary institution, admission exam scores. High school completion examinations used as alternate entrance requirements share the same bias. For this reason Bennett and Ragosta (1984) stressed the need for separate examinations for disabled groups taking admission tests. Criticism was levied because entrance examinations generally discriminate against the deaf/hearing impaired population, failing to accurately predict the students' potential for success. Instead their language deficit,

difficulty in reading and understanding math problems is often measured by these paper and pencil tests (Randall, 1984; Stilwell, 1981; Tucker, 1979; Wilson, 1982; Young, and Leslie, 1979;). Without a more appropriate admission policy, the deaf/hearing impaired students are indeed handicapped; their numbers will continue to represent a very small proportion of students in higher education. Greenberg and Greenberg (1971) stated:

> If there is in society a group who for one reason or another are substantially less well prepared for college work than the norm and are therefore largely excluded from attending college, it is in the best interest of society to make special provisions for giving them access to higher education. (A.A.D. June 1971, p.372)

Gallaudet College claims that 80% of the students who enroll in their institution could not gain admission to any college for the hearing. Fully aware of the cultural deficit, language problems, cumulative skills and knowledge lag, one preparatory year and occasionally two are built into the Gallaudet program. They have adopted a policy of accepting every applicant who has a chance of succeeding with their curriculum, not just the more academically able. Evaluation of the students' ability is based on the Gallaudet Entrance Examination battery. Twenty different measures are administered over a two-day period, reading, writing, grammar, vocabulary, mathematics, a non-verbal intelligence test, concept development, paragraph arrangement, punctuation, spelling and student motivation are all considered. From the results of the

self administered tests, an individualized remedial program is designed for each student. Assistance in these deficit areas is provided during the preparatory year (Greenberg, 1971). The test battery has a high predictability. Students who drop out generally do so because of a lack of interest, their poor motivation resulting in academic inadequacy (Greenberg, 1971).

The Need for Special Services

It is not enough that post-secondary institutions accept deaf/hearing impaired students into their selected areas of study. Andrea Schein and Neault (1986) and Stilwell, Stilwell, and Perritt (1981) have suggested that it is foolhardy for institutions who are unwilling or unable to provide support services to enroll deaf/hearing impaired students. Without support services these students are more likely to drop out, which tends to perpetuate the myth that they are unsuitable for higher education, reinforcing the negative opinion held by some admittance officers and faculty members toward this population.

The National Technical Institute for the Deaf (NTID) and other post-secondary institutions have successfully accommodated deaf/hearing impaired students in regular classrooms with modifications to the curriculum that have included coordinated support services such as trained notetakers, interpreters, tutors and liaison with faculty (Wilson, 1982). Through inservicing and

workshops instructional staff are kept informed of the needs and means of assisting deaf/hearing impaired students.

California State University at Northridge (CSUN) also established a plan for mainstreaming deaf/hearing impaired students in 1964. From a tenuous beginning with 2 students, the program expanded until in 1985 there were 207 deaf/hearing impaired students in more than 500 classes. Nominal support is given by sign language interpreters who provide in class translation. Experienced notetakers sit in the classroom taking detailed notes, allowing the student to pay full attention to the professor and the interpreter. Tutoring services are furnished by deaf/hearing impaired and hearing students in training to become teachers. Student Personnel Specialists provide counselling and program planning. Extracurricular activities include campus sponsored social and educational programs, leadership workshops, intramural activities and other sports activities. Jones (1986) in his description of the support services further claims that the mainstreamed handicapped students benefit significantly from full participation with their hearing classmates. For some it is the first time they have attended classes with hearing students. It changes their view of the world. They see themselves as being no different from others, fully capable of integrating with, learning from and competing with others and having the potential to succeed in their lifes' goals. Because of the social and academic

integration brought about by mainstreaming, they no longer felt isolated. Interestingly sign language classes offered on campus are also well attended by hearing students wanting to communicate with their deaf/hearing impaired classmates. According to McIntire (1981) instructors at CSUN benefit from exposure to and teaching deaf/hearing impaired students. He claimed to use more visual aids, to talk while facing the class, and to use the chalkboard to write out new and unfamiliar terminology.

Notetakers

Notetaking is considered an essential service by deaf/hearing impaired students in a mainstreamed setting attending institutions of higher learning. Doe (1986) outlined successful methods used at Carlton University in Ottawa for supplying the service. The 'buddy system' in which hearing classmates take notes then photocopy or use carbon paper in order to provide copies for their non-hearing peers is often the least effective. Common complaints included: (a) poor notes particularly those transcribed by the untrained, (b) resentment on the part of hearing students who may be enthusiastic initially but find the task an imposition later. More success may be achieved when notetakers are paid rather than volunteer however, the problem still tends to exist, (c) absenteeism of the hearing peer. To help alleviate this aspect more than one notetaker may be provided for each class. Using teacher assistants to attend lectures, to make notes on what is important and supply

explanations and definitions can be most effective. The duties often also include marking exams and papers and running tutorial sessions, A second method is to have instructors make copies of their own lecture notes available. This works well if the professor is agreeable to assisting deaf/hearing impaired students in this manner and if s/he has good/legible notes. A third possibility involves giving deaf/hearing impaired students copies of transcribed notes obtained from blind students who tape professors' lectures.

Speech/lip reading

Speechreading is a difficult skill that is mastered by only a small percentage of deaf/hearing impaired students. Often those who are successful lost their hearing after they learned English. Only a small number of English sounds are visible on the lips and even those can be impossible to discriminate one from another for example "Mom, Bob, pop" have the same lip configuration. Only from context can their meaning be derived. Even those with well developed speechreading skills may discern only 26% to 36% of what is said (West, 1979; Sanders, 1971). A good knowledge of English helps them to fill in missing words for comprehension of the speaker's message.

Need for interpreters

Skilled sign language or oral interpreters are essential for most deaf/hearing impaired to understand lectures. The new

vocabulary and unfamiliar context of higher level studies add to the difficulty of speechreading making the task onerous if not impossible even for the skilled. The role of the sign language interpreter is similar to that of an interpreter for foreign language speakers, to facilitate communication. They are an aide to the instructor and the student, translating what the professor says as well as the deaf/hearing impaired student's and other students' questions.

It is beneficial if the interpreters have an outline of the lecture and a listing of new vocabulary prior to the lecture (McLoughlin, 1982).

Interpreter training

Interpreters for the deaf/hearing impaired are scarce particularly at the post-secondary level. Only recently have training programs become available in Canada. While programs and interpreter candidates are increasing in numbers and popularity, more needs to be done in this area. Based on her extensive experience as a Sign Language Interpreter at the University of Alberta, Edmonton, Debbie Russell, supplied the following information about Sign Language programs in Canada in a personal interview in August, 1987. This information was confirmed by Yvonne Walmsley, Coordinator, Interpreter Training Program, Grant McEwan Community College, Edmonton, AB also in August, 1987.

Currently full-time visual language interpreter training programs nationally are available at:

1. Red River Community College, Winnipeg. Initiated in 1982 this program was not available in September 1987 because it is being reorganized and a new curriculum developed.

2. Grant McEwan College, Edmonton. Begun in 1984 this is a 10 month program but accepts for training only those students who are competent at a conversational level of American Sign Language (ASL).

3. Sheridan Community College, Toronto. Initiated in the fall of 1986, this is a 2 to 3 year program that does not require fluency in ASL prior to entrance.

4. Douglas College, Vancouver. Their program began in January, 1988.

5. As soon as consistent funding is assured interpreter training will be permanently instituted at St. Claire's College, Windsor and St. Mary's University, Halifax.

Canada is fortunate in that the programs offered adhere to curriculum standards. They primarily concentrate on teaching ASL and the process of interpreting during a minimum of 35 hours per week. While most are 10 month programs, the participants in these programs are skilled in ASL prior to enrollment. Classes have a maximum of 10 to 15 students; each has a practicum component. Graduates achieve a basic level of competence as generalists.

Interpreting at a post-secondary level as with other demanding fields requires an understanding of the subject matter and advanced vocabulary. While training in specialized fields is desirable and students would benefit from a full two years of training, funding for longer programs is not available at the present time.

Marion Nicely, Director, Office of Disabled Student Services, University of Alberta, Edmonton indicates that there is no certification for interpreters of the deaf in Canada. The National Association of Visual Language Interpreters of Canada have an evaluation model developed but again lack the funding necessary to put it into place nationally. The American Registry of Interpreters for the Deaf (RID) also provide certification for Canadian Interpreters. An evaluator comes to Canada approximately every two years for this purpose. Canadian oral interpreters are also certified through R.I.D.

The qualifications or level of skill of interpreters is often evaluated by the hiring institution. Other organizations, such as Silent Voice Inc., the Canadian Hearing Society and the Ontario Interpreters Service that supply independent interpreters, provide their own quality assessments.

Oral interpreters

Oral interpreters are required for hearing impaired persons who use speech and speechreading as their preferred method of communication. Requests for this service in post-secondary

institutions is increasing. There is a relatively low incidence of profound deafness in the school population. Because of early identification of hearing loss, maximum use of residual hearing through training and amplification, family oriented early education programs that include placement of deaf/hearing impaired students in the regular school programs increased numbers of these high school graduates list English rather than ASL as their "mother tongue". While many are excellent speechreaders and communicators, certain settings may make auditory comprehension and speechreading difficult or impossible due to: poor lighting, distance from the speaker, multiple person conversations, personal characteristics of the speaker such as immobile upper lip and facial hair, complexity of the information and lack of familiarity with the vocabulary (Guidelines for the Preparation of Oral Interpreters, 1979; Northcott, 1977). Canada has one full-time oral interpreter's program at the University of Ottawa where a master's degree program is offered (Russell, 1987; Walmsley, 1987).

Costs involving interpreters

The high cost of hiring interpreters often inhibits the deaf/hearing impaired student from personally assuming this expense without additional government assistance. Wages in a public school setting vary from $12 to $15 per hour and for the general community from $15 to $35 per hour with more for highly skilled specific types of work (Russell, 1987).

Finding the financial resources to pay for interpreters is a major problem facing most post-secondary institutions and their deaf/hearing impaired students. Supplying interpreters who demonstrate ability in the specific discipline in which they are interpreting is another (McLoughlin 1982).

Counsellors/student services

Ideally qualified counsellors who are competent sign language users should be available to assist deaf/hearing impaired students with educational, personal and vocational counselling. The use of untrained interpreters as an intermediary when the client expresses him/herself in sign language is not recommended. The client may feel confidentiality is breached, the counsellor might miss subtle innuendoes of meaning that s/he would have understood had a language barrier not existed. Facial and body expressions are generally common across all languages. English as a Second Language (E.S.L.) speakers must only contend with using appropriate words and language to convey meaning. ASL users on the other hand use facial expression, lips configurations and body stance as an integral part of their language. This aspect then adds to the likelihood of being misunderstood by the listener unfamiliar with ASL. Frequently the counsellor-psychologist is involved in pre-entrance testing. An untrained interpreter would to some extent modify the questions and responses of the client and thus might affect scoring results (Fallberg, 1983).

Decaro and Areson (1983) found a wide range of needs in the deaf/hearing impaired student population including the necessity for personal growth, career development and economic awareness. In their study faculty members listed common characteristics of this population that required attention: (a) their limited knowledge base, (b) limited knowledge of self, (c) limited decision making, (d) lack of coping skills, (e) an inadequate cultural awareness. Thinking processes that also required development included: (a) managing and coping with conflict, including social competence and finding alternative strategies, (b) decision making skills, (c) generalization from previous information to help in decision making and (d) improving study habits, particularly developing independent learning skills. Fallberg (1986) supported these findings stressing the need for expert counselling services for deaf/hearing impaired to encompass all aspects of personal, educational and career planning.

Woltz and Davidson (1980) proposed an integrated approach to support services for handicapped students. They claimed that open admission policies that are becoming more common frequently require placement testing of incoming students. Evaluation is requested in reading comprehension, writing composition and math. This can be coordinated through the counselling department. To facilitate language learning deaf/hearing impaired students can be mainstreamed into English as a Second Language, (E.S.L.) classes.

(However, in a private conversation, Dr. M. Rodda, Professor, Department of Educational Psychology, University of Alberta, Edmonton on August 26, 1988, stated that E.S.L. teachers at Alberta College, Edmonton have not found this solution to work well because some deaf/hearing impaired do not have the strong language base common to E.S.L. learners.).

Woltz and Davidson (1980) explained that the Community College of Philadelphia offers special tutoring in the College's Learning Lab for handicapped students. The deaf/hearing impaired are encouraged to participate in group tutoring sessions as well as one on one. Student Services makes the faculty aware of deaf/hearing impaired students, answers questions about students' limitations, the instructors' legal as well as unofficial responsibilities. They assist at the beginning of the classes in establishing how course work will be completed, how tests and exams are taken and the time lines. Generally there is an effort to allay staff apprehension fostering a flexible, adaptive, creative and supportive attitude toward the handicapped students. Student services personnel also assist graduating students with resume writing, preparation for job searching and some employment placement. They liaise with college staff as well as various outside agencies and community groups, secure funds for special equipment purchases and run special programs. This format seems to lend easily to adoption by larger post-secondary institutions that

have already established counselling and student services divisions in their establishments.

Funding Including VRDP

Funding to assist deaf/hearing impaired students endeavouring to obtain post-secondary educations is obtained through many sources. A Guide to Services for Disabled Albertans and Financial Assistance for Alberta Students 1985-86 provided the following information. Provincial Advanced Education departments fund post-secondary programs and support services for adult students who are educably handicapped. Provincial Manpower coordinates the delivery of employment and career development services while Provincial Social Services attempts to ensure a comprehensive system of rehabilitation programs and services for persons with moderate to severe disabilities. They also provide financial and vocational counselling, continuing education and support services for students who are disabled. The Vocational Rehabilitation of Disabled Persons (VRDP) Program through a Provincial-Federal agreement shares the financial burden to provide vocational rehabilitation services for people with disabilities. Provincial Manpower Administers the skill training component of the VRDP program covering vocational assessment, career counselling training allowances and support to program participants. The "training' segment of the program may occur at universities, technical institutes, colleges, public and private vocational

centres/schools, or through on-the job training. To those eligible, allowances are grants, non-taxable and non-repayable. They are based on full time attendance with the allocation varying according to individual need. This is often the most common source of financial assistance for deaf/hearing impaired post-secondary students. The Minister of Supply and Services Canada publication, Obstacles, (1985) notes the major weakness with VRDP is that disabled persons must identify a specific vocational goal. Students can not obtain funding for educational upgrading without delineating their occupational objective. Grants are "tied to" the student. Institutions cannot access the money directly therefore anticipating the enrollment of disabled students may be difficult. As a result support services may not be in place at the beginning of the semester.

The Student Finance Board administers a wide array of programs including a special grant program for either full-time or part-time study to a maximum of $1000 per semester for qualifying disabled students. In addition deaf/hearing impaired post-secondary students may apply for an Imasco scholarship for disabled students that is administered through the Canadian Society of Colleges in Ottawa. Funding is provided for tuition and books for one year to five students annually. Bursaries are available for disabled students at some campuses for example Marion Nicely, Director of Disabled Student Services, University of Alberta stated that the

Students' Union at the University of Alberta campus, Edmonton will often provide money for tuition and books.

While at first glance it appears that no deaf/hearing impaired student should have to forego post-secondary education or essential support services to help them attain their goals, the reality at least in Alberta may be quite different. Currently funding cut backs have affected all levels of education. Criteria that was once flexible may now be rigidly enforced. A student applying for assistance may be turned down with little or no explanation or alternatives for other subsidies presented. There have been large budget cuts to VRDP. Whether or not the Student Finance Board will be able to pick up the slack is still unknown. (Nicely, 1987)

Educational Opportunities Influence Employment

McLoughlin (1982) claimed that higher education has tended to increase the economic resources of other minorities and could presumably do so for deaf/hearing impaired. Currently the employment outlook for many in this population is poor. Typically the deaf/hearing impaired are found among the underemployed in repetitive jobs with little promotion prospects, and this can lead to frustration and dissatisfaction. Others may be chronically unemployed. Rodda (1979) supported this contention noting that in comparison to the hearing population a higher percentage of deaf/hearing impaired are laborers, farm and non-farm workers with a lower proportion in professional, technical, clerical, sales and

service professions, the fastest growing categories of employment. They are also under represented as managers, officials and proprietors. He suggested that young people may be "written off" by the educational system. Without the necessary pre-vocational skills they are unable to enter training programs that would lead to more fulfilling occupational roles.

Evaluation of Deaf/Hearing Impaired Students

Fallberg (1983) claims that in addition to psychological and aptitude testing before deaf/hearing impaired students are recommended for educational placement it must be ascertained that their goals are realistic. Consideration of vocational upgrading must include an evaluation of past academic and work performance, vocational background, the client's emotional stability, motivation, test scores and a psychological evaluation.

Many commercial evaluation systems do not provide an adequate assessment of the technical information required by jobs. Work samples while measuring an individual's psychomotor ability frequently do not evaluate abstract and cognitive skills. Other tests that do explore the latter may not give sufficient information about the highly skilled technical knowledge required for example in electronics or advanced mathematics. Buchkowski (1983) gave a brief overview of the St. Paul Technical Vocational Institute (TVI). During a three-month preparatory program deaf/hearing impaired students attend personal management,

communication and math classes. The students' ability to learn in specific areas such as math and those related to their area of study is assessed. The vocational evaluation service is designed to expose students to a broad range of work experience, giving them valuable "hands on" participation. In this way students are able to self evaluate their own skills in relation to job expectations, make more informed decisions about training areas and instructors can identify remediation needs of the students. Students' time can be saved and educational resources can be conserved. Psychometric assessments and work samples in addition to vocational training "tryouts" have been found to be an effective tool with deaf/hearing impaired students (Buchkowski, 1983).

Post-secondary Educational Models

The United States has developed essentially four models for educating deaf/hearing impaired post-secondary students:

1. A special educational environment for the deaf/hearing impaired with a mandate to educate this population, few if any normal hearing students are enrolled. Gallaudet College and National Technical Institute for the Deaf (N.T.I.D.) at Rochester Institute of Technology in New York are the only two institutions in North America of this type.

2. Regional programs for the deaf/hearing impaired offering comprehensive support services, where classes and facilities are primarily designed for the deaf/hearing impaired, California State

University at Northridge, California; St. Paul Technical Vocational institute in St. Paul, Minnesota; Delgado Junior College in New Orleans, Louisiana and the Seattle Community College in Seattle, Washington, are examples.

3. Other educational institutions that generally meet the needs of the handicapped students use specially trained staff. Deaf/hearing impaired students are integrated in classrooms with regular students. Various levels of assistance are provided including notetakers, interpreters and counsellors.

4. Regular post-secondary educational settings that have no special services for the handicapped (Schein, 1986; Rawlins, Karchmer & Decaro, 1983).

In 1982, Wick expressed grave concern about the lack of post-secondary opportunities and facilities in Canada for deaf/hearing impaired students. He suggested four possible long term solutions to the problems that this population so often faces: (a) establish a free standing College program in Canada for the deaf/hearing impaired students similar to Gallaudet College, (b) develop an extension program of Gallaudet College in Canada, (c) develop a national centre of deafness or (d) develop a number of smaller centres of deafness studies in Western, Central and Eastern Canada. With Canada's widely scattered, relatively small population, Wick's latter suggestion is possibly more practical.

International Year of the Disabled - 1981

In 1981 the International Year of the Disabled, David Smith, Chairman of the Special Committee on the Disabled and the Handicapped addressed a public hearing in Ontario saying: "Disabled persons are not asking the Federal Government for a hand out, but a hand up, so that they can build for themselves lives of independent choice and action" (Minister of Supply and Services Canada, 1981, p.1). In his report he identified key obstacles faced by the disabled and outlined practical actions to help overcome these problems. The recommendations of the Special committee called for legislative, fiscal and organizational initiatives on the part of the Federal Government.

"The deaf are education poor precisely because there are few sign interpreters in Canada. Thousands of very intelligent, but hearing-impaired individuals, are cut off from any kind of higher education simply because they face a communication barrier" (Minister of Supply and Services Canada, 1981, p.105). The admonition was to establish sign language departments in both official languages at universities, to stimulate research in the field of rehabilitation and to establish research chairs and fellowships. Through federal-provincial cost sharing agreements up to 50% of the block funding required by the accredited university for establishing a special department would be provided (Minister of Supply and Services Canada, 1981, p.128). The Secretary of

State later announced that a proportion of the $25 million, Centres of Specialization Fund would be available to Canadian Universities to improve post-secondary opportunities for disabled Canadians including the deaf/hearing impaired through research, development of support services and innovative programming (Western Canadian Association for the Deaf, 1979). In practice, somewhat less than $3 million was used to establish three Centres of Specialization at the University of Alberta, Edmonton, St. Mary's University, Halifax and the University of Western Ontario, London.

A 1985 progress report, of the Minister of Supply and Services Canada in Obstacles noted that competition for economic opportunities and job security had increased for all areas of disability. For the disabled who lacked access to training and education, the employment problems often seemed insurmountable. A publication of Health and Welfare, Canada as reprinted by the Minister of Supply and Services Canada, (Obstacles, 1981, p.33) indicated that the rate of unemployment for employable disabled was 80%. This statistic included the deaf/hearing impaired. The estimate that there were over 200,000 profoundly deaf people in Canada, and an additional 1,500,000 with hearing impairments lent new impetus to the concern about the lack of educational opportunities for this population. The need for accredited sign language interpreters received assistance when in 1982 the Department of the Secretary of State awarded a $30,000 grant to the

Canadian Coordinating Council of Deafness to begin an Advanced Sign Language Studies Program at the University of Ottawa. This Program was mandated to: (a) work toward recognition of ASL as a distinct language, (b) develop curriculum and standards for credit courses to be taken by hearing persons similar to other language courses, (c) provide ASL interpreters for a variety of courses to enable deaf students to follow a regular program of studies, (d) facilitate reduction of the communication barrier faced by deaf/hearing impaired students in achieving higher education.

A 1985 issue of Newsletter indicated that a new program of support services for post-secondary students with hearing impairment would begin in September in Ontario. The program to be phased in over the next five years at a total cost of $500,000 would train sign language and oral interpreters and notetakers. The Canadian Hearing Society agreed to supply amplification devices for all students but particularly part-time students. The program to begin in Toronto and Ottawa was expected to expand throughout the province. An advisory committee was set up to counsel the minister on program policy, standards of service and future directions.

In Alberta, the Western Canadian Centre of specialization in Deafness, the Faculty of Education at the University of Alberta and the general public raised $500,000. This was combined with a Federal Government grant of $725,000 to establish the David Peikoff

Endowed Chair in Deafness Studies. The Chair to be administered by the University of Alberta will be: "The only academic position of its kind in Canada the occupant will hold the chair for a short time, likely one to three years, so that the University can keep attracting outstanding specialists to teach and do research" (Chair of Deafness Studies Named, Folio 1987). Identified areas of research include: deaf people and employment, deafness and the law, mental health and deafness, and deaf people and computers.

In Eastern Canada, St Mary's University has set up special services for deaf/hearing impaired students to improve post-secondary opportunities for this population. They also serve in an advisory position to other post-secondary institutions who enroll deaf/hearing impaired students.

It would appear that Canada is moving toward fulfilling its obligation to enable the deaf/hearing impaired better opportunities in post-secondary education, although at this time there is some concern that economic pressures are preventing us from maintaining the momentum of the early/mid 1980's.

CHAPTER 3

METHODOLOGY: THE RESEARCH DESIGN

This chapter defines the objectives of the survey, describes the sample and the questionnaire. It also reviews the procedures for data collection and method of analysis.

Objectives of the Survey

The major thrust of the study was to determine the characteristics of the institutions serving the deaf/hearing impaired population attending post-secondary institutions in Canada. The survey was designed to assist in determining how many deaf/hearing impaired students are enrolled in Canadian post-secondary institutions. In addition, information regarding entrance requirements, English language competency examinations, financial assistance, services including interpreters, notetakers, tutors, and counsellors, resources and facilities such as apprenticeships, worksites, audiological services and extracurricular activities was sought. In obtaining this information it is hoped that the resources that already exist can be ascertained and the needs determined to improve the educational prospects and employment opportunities for deaf/hearing impaired students.

The model used, including the use of chi square for analysis of the data, is based on a 1969 research survey and study by Goldin, Margolin and Stotsky that assessed services, facilities,

financial assistance and admission policies of post-secondary institutions in New England.

Description of the Sample

The institutions were chosen from names presented in the list of College and University Programs in Canada published in 1984 by the Minister of Supply and Services Canada, as well as The Directory of College Facilities and Services for the Handicapped (McGeough, Jungjohan & Thomas, 1983) and Education - A guide for the deaf and hard of hearing (1982). The post-secondary institutions were not randomly selected. Two deaf adults both familiar with the post-secondary educational problems of deaf/hearing impaired students chose institutions that were likely to receive admission applications from deaf/hearing impaired students. In addition, other post-secondary institutions were added, the names being culled from experienced people working in the field of deafness and their knowledge of institutions that have served deaf/hearing impaired students.

Description of the Questionnaire

The questionnaire (see appendix B) is comprised of 17 questions requiring yes/no, fill in the blank and descriptive answers. Institutions that had served deaf/hearing impaired students were asked about special programs and their year of establishment, student financial assistance, special services including counsellors, tutors, notetakers and interpreters and how

these services are obtained, special classes and those conducted in sign language, apprenticeships and worksites. Other questions asked about technical assistance including audiological and hearing aid equipment, and loop systems. Information regarding extracurricular activities such as leadership, sports, religious and social organizations and/or activities was also requested.

The majority of the items on the questionnaire were easily coded. However, questions requiring open-ended responses to allow respondents to describe their facilities more fully were grouped for similarities across institutions and then recorded.

Procedures for Data Collection

A questionnaire was mailed out to 188 universities, colleges, technical and vocational post-secondary institutions in Canada. Each of the selected post-secondary institutions was sent a questionnaire and covering letter explaining the purpose of the survey. A return envelope was also included. Those institutions who had not responded within a four month period were sent a second questionnaire and letter. The letter requested that all institutions reply including those that had no hearing impaired or deaf students registered. In each case the contact person remained constant.

The covering letters were mailed to the directors of admissions at the target institutions. In some instances the questionnaires were passed to other individuals within the

institutions presumably because it was felt that their work activities better qualified them to answer the questions.

Of the 188 survey forms distributed 147 (78.2%) were returned (Table 1, p. 40). On examination of the results five of these were deemed incomplete therefore 75.5% of the post-secondary institutions surveyed are included in the results of the study.

No translation facilities were available so the questionnaires written in English were sent to post-secondary institutions in Quebec. A greater response might have occurred had the survey forms been written in French.

The rate of return ranged from 27.3% from the province of Quebec to 100 percent from Saskatchewan, Yukon Territories and Northwest Territories. The largest number of forms were sent to Ontario (43) followed by British Columbia and Alberta (33) each and Nova Scotia (17). The 1979 Statistics Canada Report noted these provinces have the larger number of students attending post-secondary programs. Quebec's population of students enrolled in post-secondary programs closely parallels Ontario, but as already indicated, translation facilities limited distribution of the questionnaire in Quebec.

Technical institutions were the most numerously surveyed (50%) primarily because these included Colleges offering one or two years of university training as well as those with technical courses. Degree granting establishments were next (36.6%) the exception

being Newfoundland with 10 vocational schools represented. This province has a proportionately larger number of institutions that are labelled "vocational". In many instances these post-secondary vocational institutions offer technical as well as vocational training.

Table 1 (p. 40) shows the distribution of post-secondary institutions in each of the provinces and territories.

Analysis of the Data

Questions 1 through 3 were analyzed and coded numerically to determine the distribution and type of post-secondary institutions (degree granting, technical or vocational) in each of the provinces or territories. If additional information was required regarding classification for the types of institutions the institutions' academic calendars were consulted. This information is recorded in Table 1 (p. 40).

Questions 4a and 4b revealed the distribution and numbers of full and part-time students attending the responding post-secondary institutions and are recorded in Tables 2, 3 and 4 (p. 40, 42 & 45). Questions 4c through 4e added to the information presented in Table 3 (p. 42) regarding past, present and future enrollments.

For the most part questions 5a through 17d on the questionnaire were codable and reveal the services, facilities and resources recorded in Tables 5 through 23 (p. 50 through 86). Certain questions however called for open-ended responses. In

addition, informants were invited to describe some services and facilities. Thus, this study is based on quantitative as well as qualitative information. Data was analyzed by cross tabulation. Significance was established using the chi square test. To be accepted as significant, a chi square value had to have a probability of 5% or less. The chi square was calculated omitting the "no responses" to make the comparisons among degree-granting, technical and vocational institutions more valid. Where numbers for vocational institutions were small, technical and vocational institutions were grouped providing a comparison of degree-granting and technical/vocational institutions. Significant chi squares are recorded in Table 24 (appendix A).

Assumption

The terms deaf and hard of hearing were used to indicate those students who would have difficulty functioning in an academic setting without support services.

CHAPTER 4

RESULTS OF THE SURVEY

Institutions by Province

The distribution of the questionnaires to the provinces and territories and responses received from the post-secondary degree granting, technical and vocational institutions are recorded in Table 1 (p. 40).

Institutions That Have Deaf/Hearing Impaired Student's Enrolled

Over 50% of the institutions replying to the survey had deaf/hearing impaired students registered during 1985 and/or 1986 (Table 2, p. 40). Of these 52.6% were technical and 38.2% degree granting. Forty percent of the post-secondary institutions reported no deaf/hearing impaired registered. However, it must be emphasized that these institutions were chosen because they were likely to have deaf/hearing impaired students enrolled.

Vocational institutions made up only 13.4% of the total institutions responding to the survey, 36.8% of those had deaf/hearing impaired registered as compared to 55.8% of the degree granting and 56.3% of the technical schools (Table 2, p. 40). It is interesting that vocational schools, many of which offer ideal programs for deaf/hearing impaired students have proportionately less students, perhaps reflecting and reinforcing employment discriminatives for this population.

Some post-secondary institutions indicated that while deaf/hearing impaired were not currently enrolled they had served

TABLE 1:

RESPONDING INSTITUTIONS BY PROVINCE

PROVINCE	BC	AB	SK	MB	ON	PQ	NB	NS	PE	NF	YT	NT	TOTAL
DEGREE GRANTING	5	8	2	3	16	2	3	11	1	1	0	0	52
TECHNICAL	15	15	3	2	19	1	5	4	1	4	1	1	71
VOCATIONAL	1	4	0	0	1	0	2	1	0	10	0	0	19
TOTAL RETURNED	21	27	5	5	36	3	10	16	2	15	1	1	142
PERCENT RETURNED	63.6	81.8	100	71.4	83.7	27.3	76.9	94.1	66.7	71.4	100	100	75.5
TOTAL SENT	33	33	5	7	43	11	13	17	3	21	1	1	188

TABLE 2:

CURRENT ENROLLMENT

	DEGREE GRANTING		TECHNICAL		VOCATIONAL		ROW TOTAL	
	#	%	#	%	#	%	#	%
HEARING IMPAIRED NOT ENROLLED AT INSTITUTION	17		28	49.1	12		57	40.1
HEARING IMPAIRED ENROLLED AT INSTITUTION	29 (55.8%)	38.2	40 (56.3%)	52.6	7 (36.8%)	9.2	76	53.5
NO RESPONSE	6		3	33.3	0		9	6.3
COLUMN TOTAL	52	36.6	71	50.0	19	13.4	142	100.0

this population in the past. This included 5 (3.5%) degree granting, 9 (6.3%) technical and 3 (2.1%) vocational institutions or combined, 11.9% of the total (Table 3, p. 42). Of the institutions responding to the questionnaire 93 of 142 (65.5%) had deaf/hearing impaired students enrolled at some time (Tables 2 and 3, p. 40 & 42). An additional 5% indicated that they had plans to serve deaf/hearing impaired students in the future thus increasing the potential number of post-secondary institutions in Canada who have or would serve deaf/hearing impaired students to 100 (70%) of the total responding to the survey.

It is important to note that many of the post-secondary institutions that had not had deaf/hearing impaired applicants would be prepared to consider such student's applications should they apply. The following is a sample of comments received:

> Ours is a small rural college if a hearing impaired student comes to us, individualized material will be available to them as well as a personal tutor.
>
> Should a hard of hearing student wish to enroll in any of our programs we would endeavour to supply an interpreting service and any other support required.
>
> If there was a demand we would consider the possibility.
>
> We will make every concession we can to assist deaf students who will attend. The size of the institution (500 students) and the lack of demand for such facilities precludes our making special provision in advance of such demand.
>
> We have made every effort to provide necessary and essential services to those with physical handicaps and would be willing to accommodate students with hearing

TABLE 3:

PAST PRESENT AND FUTURE ENROLLMENT

	DEGREE GRANTING		TECHNICAL		VOCATIONAL		ROW TOTAL	
	#	%	#	%	#	%	#	% of n
HEARING IMPAIRED PREVIOUSLY ENROLLED AT INSTITUTION (included previously)	5	3.5	9	6.3	3	2.1	17	11.9
FUTURE PLANS TO ACCOMMODATE HEARING IMPAIRED	1	0.7	6	4.2	0		7	4.9
TOTAL NUMBER ENROLLED OR PREVIOUSLY ENROLLED	34		49		10		93	65.5
TOTAL NUMBER ENROLLED PREVIOUSLY ENROLLED OR PLANNED ENROLLMENT	35		55		10		100	70

n = 142

row percentages are expressed in relation to n = 142

difficulties whenever the situation should arise.
(quoted directly from responses in the questionnaires)

Number of Full and Part-time Deaf/Hearing Impaired Enrolled in Post Secondary Institutions

Many of the respondents indicated that the number of deaf/hearing impaired students attending their institution represented at best the minimum number. It is unlawful to request students to identify their disabilities on the application form therefore, only those students who identified themselves as needing additional support services are recorded in the survey numbers. Hard of hearing students who cope in the post-secondary route without requesting additional help or making themselves known to the institution are not part of this survey. The following are a few of the comments received from respondents that support the above statement:

> We have woefully inadequate means of identifying who these students (hearing impaired) are particularly in the part-time students.
>
> This is the number who have applied for assistance via our office.
>
> It came to my attention that there are 2 hard of hearing students in ... program .... This is only an example. There has been no official count.
>
> The students are the ones I know (about) because they requested assistance.
>
> There is no way to identify any disability unless the student volunteers the information. There are probably more on Campus.

> I do not know how many (hearing impaired) students are on campus but since we have the provincial coordinator of hearing impaired children in our building I am aware of some students.
>
> Unless specified on the application forms we are not aware of hearing disabilities.
>
> Students are not required to identify themselves and as such it is impossible to determine numbers other than through self-disclosure. (quoted directly from responses in the questionnaires)

The total number of deaf/hearing impaired students reported represents an approximate figure of full and part-time enrollment (Table 4, p. 45). Of the 529 deaf/hearing impaired students one-half attended technical schools. This could be the result of student preference, institutional bias or capacity to serve the student.

Of the total, 29.5% of the students attended degree granting institutions, 50% enrolled at technical and 21% at vocational. However, Dr. Helen Ilott, Associate Professor, Elementary Education and Dr. M. Rodda, Professor, Educational Psychology, University of Alberta, Edmonton, AB. suggest that the real numbers of deaf/hearing impaired attending post-secondary institutions may be from two to four times higher than those numbers reported. Many deaf/hearing impaired students function without additional assistance, coping with various degrees of success within the mainstream.

TABLE 4:

FULL AND PART TIME ATTENDANCE

	LESS THAN 10 STUDENTS	10 OR MORE STUDENTS	TOTAL INSTITUTIONS	TOTAL STUDENTS
DEGREE GRANTING	21 (77.8%)	6 (22.2%)	27 (100%)	156 (29.5%)
TECHNICAL	30 (75.0%)	10 (25.0%)	40 (100%)	263 (49.7%)
VOCATIONAL	5	3	8	110 (20.8%)
TOTALS	56	19	75	529

NOTE: n=75
number of full-time=352
number of part-time=177

The majority of post-secondary and technical institutions 77.8% and 75% respectively had 10 or fewer deaf/hearing impaired students in attendance. This would indicate that in many institutions deaf/hearing impaired students are isolated and have few similarly disadvantaged associates on campus. On the other hand larger numbers of these students attended 6 vocational and 10 technical institutions. It is likely that an establishment serving a larger number of deaf/hearing impaired students could provide more and better services. Of the total number of students attending, 352 were reportedly full time (Table 4. p. 45).

In 1984 the total population of hearing disabled in Canada according to the Canadian Health and Disability Survey was 634,000 (Statistics Canada, 1983-84). The 1985 report of the Minister of Supply and Services Canada in Obstacles estimated that there were over 200,000 profoundly deaf people in Canada, and an additional 1,500,000 with hearing impairments. Depending upon the criteria used to describe the degree of deafness, hearing disability or hearing impairment there will be a discrepancy in the numbers reported. As explained in the definitions of terms (p. 3), "deaf" and "hearing impaired" are used to explain varying degrees of hearing loss. Many factors come into play in determining how well individuals with relatively the same hearing loss will cope in the hearing world. Ross (1986) explained that many students fail to

reach maximum use of their residual hearing. The numbers reported likely reflect these factors.

Three hundred and fifty-two full-time deaf/hearing impaired students attending post-secondary institutions represent from 0.021 to 0.056% of the total deaf/hearing impaired population depending upon the statistic used (1,700,000 or 634,000 deaf/hearing impaired). Even assuming that the real numbers of deaf/hearing impaired students are four times those identified, the percentages would then range from 0.081 to 0.222%. The population of Canada in 1985-86 (Statistics Canada, 1988) was 25,354,064. In 1986 the total full time post-secondary enrollment was 789,800 or approximately 3.1% of the total population. Even allowing for those unidentified one might conservatively assume that deaf/hearing impaired students have considerably lower probability of attending post-secondary educational facilities.

Statistics on the percentage of part-time post-secondary students attending Canadian institutions were unavailable, however, a similar pattern probably exists for the part-time as does for the full-time deaf/hearing impaired student.

Special Programs Available for Deaf/Hearing Impaired Students at Post-secondary Institutions

Institutions accommodating deaf/hearing impaired students were asked to describe their special programs. Some institutions suggested that they provided upgrading and support in mainstreamed classes without being more specific about the type of help given to the deaf/hearing impaired students. Other comments, resources and facilities that were mentioned but not recorded as "special programs" include the following:

> Atlantic Centre of Support for Disabled Students is consulted.
>
> Each case is dealt with on an individual basis. The coordinator for services to the disabled students meets with each student to assess his/her needs .... We encourage and support students in all his/her projects and encourage meeting other hearing and hearing impaired students ... a fulfilling experience on campus.
>
> ... orienting professors to the communications considerations important to oral deaf.
>
> individually designed program approximately one year. A mixture of academic studies... plus supervised training in one or more clinical locations.
>
> ... special arrangements for examinations.
>
> The Learning Centre helps all students with learning problems who are taking credit courses at the college. This is not a special service for hearing impaired students only.
>
> career and job preparation for adults with hearing impairment. (quoted directly from responses in the questionnaires)

The majority of post-secondary institutions who have served the deaf/hearing impaired population do not provide special programs. If one includes the "no responses" this number is even higher (65%). However, 44.9% of the responding technical institutions, 23.5% of degree granting and 20% of vocational schools do provide some special service (Table 5, p. 50). Those desiring a higher education would have to be very selective in choosing the post-secondary institution and depending on their needs, be willing to travel to attend their choice of program and/or live away from home. This places a burden upon both the student and the family. It also means that special programs established for the deaf/hearing impaired may draw from a wider area than those for hearing students, which may have jurisdictional and financial implications.

The results of the chi square presented in Table 24 (Appendix A) revealed no statistical significance [$x^2(2, N = 87) = 5.12207$, $p > .05$)] however, with a probability of 0.07 this may indicate a trend toward differences between the types of degree granting and technical/vocational post-secondary institutions surveyed who have served the deaf/hearing impaired and whether they provide special programs.

Special Programs Year of Establishment

Craig Ostopovich, an interpreter and advocate for the deaf was quoted as saying:

TABLE 5:

SPECIAL PROGRAMS

	DEGREE GRANTING		TECHNICAL		VOCATIONAL		ROW TOTAL	
	#	%	#	%	#	%	#	%
NO SPECIAL PROGRAMS FOR THE HEARING IMPAIRED	25		24		6		55	59.1
HEARING IMPAIRED SERVED THROUGH SPECIAL PROGRAMS	8 (23.5%)		22 (44.9%)		2 (20.0%)		32	34.4
NO RESPONSE	1		3		2		6	6.5
COLUMN TOTAL	34	36.6	49	52.7	10	10.8	93	100.0

> There are no advantages to being deaf. You are denied so much especially in education... it makes me incredibly sad to think how much he (my brother) misses because our society is not open to deaf people. I do get angry because we do so much with him at home, but he gets so little from his schooling. (Minister of Supply and Services Canada in Obstacles, 1981, p. 19)

One of the recommendations to the government during the Year of the Disabled was to give higher priority to disabled persons in special programs. Indeed the Minister of Employment and Immigration introduced a new training act in response to this recommendation stating that those "who suffer disadvantages in the labour market require better access to continuing and productive employment and employment upgrading. Training programs must be designed to ensure that they have equal opportunities" (Minister of Supply and Services Canada in Obstacles, 1985, p.33).

According to the results of this survey, 70% of the reported dates of commencement of the special programs were in 1981 or later (Table 6, p. 52). However, only 20 of the 32 institutions having special programs reported the date of inauguration. Whether or not any of the 14 new programs were begun because of heightened awareness of the needs of the deaf/hearing impaired is speculative. The reality is that these special programs for deaf/hearing impaired post-secondary students provide improved educational opportunities for this population and consequently a potentially broader employment opportunity base.

TABLE 6:

SPECIAL PROGRAMS ESTABLISHED
BEFORE AND AFTER THE YEAR OF THE DISABLED 1981

	ESTABLISHED PRE 1981	ESTABLISHED DURING OR AFTER 1981	TOTAL
DEGREE GRANTING	1	3	4
TECHNICAL	4	10	14
VOCATIONAL	1	1	2
COLUMN TOTAL	6	14	20
PERCENT	30.0	70.0	100.0

Admission Requirements of Post-secondary Institutions

As reported earlier deaf/hearing impaired students often experience severe educational deficits. They must be encouraged to achieve to the best of their ability. Restrictive entrance requirements for institutions may preclude their admittance by not allowing the admissions officer or registrar sufficient latitude in assessing each case individually. The open enrollment policy of recent years is often stated as allowing mature status adults entrance without first achieving grade twelve matriculation. Handicapped students are frequently included under this umbrella.

While admission requirements vary in provinces and territories. An "Open Enrollment Policy" is becoming more common particularly in public junior colleges. This allows students who did not complete or who failed to perform well in high school a second chance to complete their education. A General Educational Diploma (G.E.D.) or equivalency certificate is acceptable. In addition the Basic Training for Skills Development (B.T.S.D.) may be used as a preparatory program for further education. Mature student status is commonly recognized although a grade 12 equivalency in English and Mathematics may be demanded. It is of interest to note that while specific programs may have stringent entrance requirements many post-secondary institutions' calendars suggest that students should contact the institution prior to

registration if there are special circumstances and make their requests known on the application form.

The Table 7 (p. 55) describes the admissions requirements of post-secondary institutions as follows: (a) varies according to the program up to and including grade 12, (b) high school grade 12 completion, (c) mature student status or open enrollment. Other institutions indicated their efforts to accommodate deaf/hearing impaired students in the following comments:

> ... policy is currently under review for hearing impaired and learning disabled students one on one cases are heard now.
>
> Students can appeal the admission requirements based on documentation of a hearing impairment. This is done on an individual basis.
>
> We waive the reading test requirements for vocational students.
>
> Some programs allow certain tests to be interpreted into Sign Language. (quoted directly from responses in the questionnaires)

It is of interest to note that over half of the degree granting respondents (62%) recorded their universities as allowing open enrollment. The majority of technical institutions (73.5%) reported various grade level entrance requirements up to grade twelve depending upon the program. In addition, 10% have an open admission policy to allow for more flexibility. Sixty six percent of vocational schools also indicated the ability to assess students' entrance requirements individually depending upon the

TABLE 7:

ADMISSION REQUIREMENTS

	DEGREE GRANTING		TECHNICAL		VOCATIONAL		ROW TOTAL	
	#	%	#	%	#	%	#	%
ENTRANCE REQUIREMENTS VARY UP TO GRADE 12	3 (8.8%)		36 (73.5%)		5 (55.5%)		44	47.3
GRADE 12 MATRICULATION REQUIRED	9 (26.5%)		4 (8.2%)		1 (11.1%)		14	15.1
OPEN ENROLLMENT MATRICULATION WITH MATURE STUDENT STATUS	21 (61.9%)		5 (10.2%)		1 (11.0%)		27	29.0
NO RESPONSE	1		4		3		8	8.6
COLUMN TOTAL	34	36.6	49	52.7	9	10.9	93	100.0

requested program. These are recorded in the entrance requirements up to grade 12 and open enrollment columns (Table 7, p. 55). Among institutions who have served the deaf/hearing impaired there is a difference between the type of post-secondary institution and their admission requirements when degree granting and technical/vocational establishments are compared [x^2 (2, $\underline{N}$ = 85) = 40.04835 $\underline{p}$<.05] (Table 24, Appendix A).

English Requirements for Deaf/Hearing Impaired in Post-secondary Institutions

The language component of education is probably the most difficult for deaf/hearing impaired students to master. Many learn English as a second language with little first language base upon which to build the rules of the second. There is controversy about whether institutions should make English language allowances for hearing handicapped students or whether this lowers the general academic standards. It also raises the question that if deaf/hearing impaired students benefit from this exception why should foreign students be expected to score to certain standards on English as a second language tests (Test of Foreign English Literacy, TOEFL)? Despite the controversy the following comments indicate that some post-secondary institutions and their instructors are understanding of the problem:

> The University is currently evaluating the language requirements for hearing impaired students.

> Instructors who have been approached have made allowances for hearing impaired students with respect to English admission requirements. The degree and flexibility will vary from instructor to instructor. (quoted directly from responses in the questionnaires)

Sixty-five percent of the responding degree granting institutions clearly indicated that no allowances are made for English admission requirements, 43% of technical and 60% of vocational schools had similar policies. On the other hand, 31% of the responding institutions who indicated that they have educated deaf/hearing impaired do make allowances in their English language requirements for these students (Table 8, p. 58).

When comparing degree granting and technical/vocational institutions that do or do not make allowances in the English language requirements expected of deaf/hearing impaired students the results of the chi square indicates that the type of institution is not a factor in whether or not English admission requirements will be relaxed for the deaf/hearing impaired, [x^2 (1, N = 78) = 2.73392, $p > .05$] (Table 24, Appendix A).

Special Financial Assistance Available at Institutions

The question regarding financial aid was interpreted differently by various respondents. Most indicated that there were Federal and Provincial Government sponsored programs for financial awards and aid for students, for example, Canada Student Loans, Provincial Student Grants and Loans, Work/Study Programs sponsored by the Ministry of Education and Adult Basic Education Student

TABLE 8:

ENGLISH ADMISSION REQUIREMENTS

	DEGREE GRANTING		TECHNICAL		VOCATIONAL		ROW TOTAL	
	#	%	#	%	#	%	#	%
NO ALLOWANCE MADE ON ENGLISH ADMISSION REQUIREMENTS FOR HEARING IMPAIRED STUDENTS	22 (64.7%)		21 (42.9%)		6 (60.0%)		49	52.7
INSTITUTION MAKES ALLOWANCE IN ENGLISH LANGUAGE REQUIREMENTS FOR HEARING IMPAIRED STUDENTS	9 (26.5%)		18 (36.7%)		2		29	31.2
NO RESPONSE	3 (8.8%)		10		2		15	16.1
COLUMN TOTAL	34	36.6	49	52.7	10	10.8	93	100.0

Assistance Programs. There are Federal Government Training Allowances for candidates out of school for 12 months who intend to take courses of not more than 52 weeks, CEIC - Canadian Employment and Immigration Commission, Canada Unemployment Benefits and VRDP - Vocational Rehabilitation of Disabled Program Allowances.

A number of institutions mentioned some scholarships and bursaries available for the disabled. Others indicated that the cost of sign interpreters, equipment and notetakers would be underwritten by bursary programs. Other quotes were as follows:

> Disabled persons training program will pay for full tuition, room and board, books etc. for degrees of no more than four years.
>
> The Manitoba Dept. of Education, Studies Aid Branch has a special opportunities bursary which is open to hearing impaired students.
>
> Imasco Scholarships Fund for disabled students.
>
> Special incentive program through Saskatchewan Student Loans ... takes into account additional costs for equipment or other additional expenses.
>
> ... financial assistance through VRDP and interpreting services through Alberta College Interpreter referral.
>
> Ontario Student Assistance Program Vocational Rehabilitation Services.
>
> ... through the Department of Social Services and the St. John Hearing Society. (quoted directly from responses in the questionnaires)

Interpretation of the question: "Is special financial assistance available to hearing impaired students?" may have influenced the pattern of replies. A positive response was given

by less than 50% of the responding institutions (Table 9, p. 61). Federal or Provincial student loans may not be considered "special" by some. A break-down of the description of financial assistance available to deaf/hearing impaired students was more fruitful. Because some respondents specifically mentioned Vocational Rehabilitation for Disabled Persons (VRDP) as a major monetary source in paying for essential services for the handicapped, this too is shown in Table 10 (p. 61).

The Type of Financial Assistance Available at Institutions

Table 10 (p. 61) describes the sources of financial assistance for deaf/hearing impaired students according to: (a) Federal, (b) Provincial, (c) Federal and Provincial, (d) bursaries and private sources, (e) Vocational Rehabilitation for Disabled Persons (VRDP).

Over 77% of the respondents mentioned either Federal, Provincial or a combination of Federal and Provincial funding sources. Four percent suggested private contributions or bursaries to aid deaf/hearing impaired students.

Established in 1952, the VRDP appears to be the major source of educational funding for deaf/hearing impaired students. It is a social service program that is not means-tested. The aim is vocational rehabilitation providing such services as vocational assessment, counselling, maintenance allowances and the provision of books, tools and other equipment. All provinces and territories participate in this program (Statistics Canada 1978, p. 555). Only

TABLE 9:

SPECIAL FINANCIAL ASSISTANCE

	DEGREE GRANTING		TECHNICAL		VOCATIONAL		ROW TOTAL	
	#	%	#	%	#	%	#	%
NO SPECIAL FINANCIAL ASSISTANCE AVAILABLE	14		19		2		35	37.6
SPECIAL FINANCIAL ASSISTANCE AVAILABLE	14		25		5		44	47.3
NO RESPONSE	6		5		3		14	15.1
COLUMN TOTAL	34	36.6	49	52.7	10	10.8	93	100

TABLE 10:

FINANCIAL ASSISTANCE

	DEGREE GRANTING	TECHNICAL	VOCATIONAL	ROW TOTAL	
				#	%
FEDERAL FUNDING	2	3	0	5	5.4
PROVINCIAL FUNDING	4	5	1	10	10.8
FEDERAL AND PROVINCIAL FUNDING	17	35	5	57	61.3
BURSARIES AND PRIVATE SOURCES	4	0	0	4	4.3
NO RESPONSE	7	6	4	17	18.3
COLUMN TOTAL	34	49	10	93	100.0

Note: Six degree granting, 20 technical and 4 vocational institutions specifically mention VRDP funding.

30 (32%) of the responding institutions mentioned this monetary source specifically two-thirds (20) of them were technical institutions. However, since the questionnaire did not require the designation of specific funding one cannot assume the other institutions were unaware of it.

Special Classes and/or Classes Conducted in Sign Language

Few institutions provide special classes for deaf/hearing impaired students. Some of those that do described them in the following manner:

> All of the classes offered are uniquely designed to provide basic literacy education to hearing impaired adult students. Students are not mainstreamed for coursework.
>
> ... special classes at King Edward Campus on English, Math, Life skills and Communication.
>
> ... career and job preparation (courses) for hearing impaired adults.
>
> ... preparation to ready hearing impaired to enter pre-voc courses; general upgrading.
>
> small academic classes in core subjects eg. math, reading, science and life skills. (quoted directly from responses in the questionnaires)

Only 12% of the responding post-secondary institutions who have served the deaf/hearing impaired offer special classes for this population, only one (2.9%) of degree granting, eight (16.1%) of technical and two (20%) of vocational (Table 11, p. 63). The number of institutions offering classes conducted in sign language is even fewer; eight (9%) in total. Of these some stated that a

TABLE 11:

SPECIAL CLASSES AND CLASSES CONDUCTED IN SIGN LANGUAGE

	DEGREE GRANTING	TECHNICAL	VOCATIONAL	ROW TOTAL #	ROW TOTAL %
NO SPECIAL CLASSES	31	37	6	74	79.6
SPECIAL CLASSES OFFERED	1 (2.9%)	8 (16.1%)	2 (20.0%)	11	11.8
NO RESPONSE	2	4	2	8	8.6
COLUMN TOTAL	34	49	10	93	100.0
CLASSES CONDUCTED IN SIGN LANGUAGE	0	6	2	8	

Note: Classes conducted in sign language are previously recorded in special classes.

small number of courses were taught in sign language but by no means the full curriculum. The chi square was not significant when degree granting and technical/vocational institutions were compared for those having special classes [x^2 (1, N = 85) = 3.10314, p>.05]. However, the probability of 0.078 may indicate a trend that special classes for deaf/hearing impaired students are more likely to be available in certain types of post-secondary institutions.

Of interest to note is that the breakdown by Province showed that British Columbia, Alberta, Manitoba, Nova Scotia and Newfoundland each had at least one post-secondary institution that offered classes conducted in Sign language for deaf/hearing impaired students.

Interpreter Services Available at Institutions

Because of the nature of the material presented in post-secondary institutions, new vocabulary, unfamiliar and sometimes difficult and complex information may be impossible for the deaf/hearing impaired student to understand. The services of interpreters for the deaf/hearing impaired can be vital to the academic progress of these students. Fifty-five percent of technical and 50% of vocational institutions who have educated deaf/hearing impaired students have interpreting services available to this population, but only 35% of the degree granting universities (Table 12, p. 65). Thirty-eight percent of respondents stated that interpreter services were not available.

TABLE 12:

INTERPRETING SERVICES

	DEGREE GRANTING		TECHNICAL		VOCATIONAL		ROW TOTAL	
	#	%	#	%	#	%	#	%
NO INTERPRETING SERVICE AVAILABLE	20		14		1		35	37.6
INTERPRETING SERVICE AVAILABLE	12 (35.3%)		27 (55.1%)		5 (50.5%)		44	47.3
NO RESPONSE	2		8		4		14	15.1
COLUMN TOTAL	34	36.6	49	52.7	10	10.8	93	100.0

The chi square is significant at [$x^2(1, N = 79) = 6.03102$, $p<.05$] confirming that the availability of interpreting services for the deaf/hearing impaired in the responding post-secondary institutions is a factor when degree granting and technical/vocational institutions are compared (Table 24, Appendix A).

Source of Interpreting Services at Institutions

Only fifteen (16%) of the responding post-secondary institutions who have served the deaf/hearing impaired have sign language interpreters on staff while eighteen (19%) contract out (Table 13, p. 67). The availability of well qualified skilled interpreters able to translate complex academic information has traditionally been limited. In recent years there has been a greater emphasis on training skilled individuals; however, at the present time the need is far from being met. It would seem that the former having interpreters on staff would more easily facilitate meeting the needs of the students. Within a prearranged schedule the service of an interpreter is assured and the inconvenience and uncertainty of making individual arrangements avoided. This is not always possible and in some cases institutions use more than one method to access interpreter services. Again this reflects the difficulty in obtaining and paying for the service.

TABLE 13:

SOURCES OF INTERPRETER SERVICES

	DEGREE GRANTING	TECHNICAL	VOCATIONAL	TOTAL #	TOTAL % of n
INSTITUTION MAINTAINS INTERPRETERS ON STAFF	5	7	3	15	16.1
INSTITUTION CONTRACTS OUT FOR INTERPRETERS	4	12	2	18	19.4
FREELANCE INTERPRETERS USED AT NO COST TO THE INSTITUTION	5	11	3	19	20.4
STUDENT ARRANGES FOR OWN INTERPRETER	8	15	2	25	26.9

Note: n=93
Some institutions use more than one source therefore numbers may sum to more than 93.

Nineteen (20%) of the responding post-secondary institutions who serve deaf/hearing impaired students use freelance interpreters at no cost to the institution. In this case VRDP or another government service agency likely assumes the cost. A larger number, 25 (27%) have the deaf/hearing impaired students arrange for their own interpreting services. Again in this case the student would be expected to contact both the interpreter to make the necessary arrangements and the funding source to cover the expenses incurred. The cost of ongoing interpreting services would be prohibitive for most individuals. This is not to imply that interpreters are overly paid but that the cost of this benefit multiplied by the number of hours of classes per week would soon become burdensome. Adequate government funding is a vital necessity for deaf/hearing impaired students who require interpreters to progress in their education and ultimately find suitable and fulfilling employment.

Interpreting services are available through the following agencies as named by respondents to the survey: Western Institute for the Deaf, Vancouver, BC; Metro Service for the Deaf and Atlantic Centre of Support for Disabled Students in Halifax, NS; Independent Interpreter Referral Service, Winnipeg, MA; Alberta College, Edmonton, AB; Southern Alberta Deaf Centre and Society for the Hearing Handicapped, Calgary, AB; Newfoundland Coordinating Council on Deafness, Baie Vert, NF; Adult Education Community,

Happy Valley, NF; Western Institute for the Deaf and Department of Labour, Abbotsford, BC; Canadian Hearing Society and Vocational Rehabilitation Services, Rexdale, ON; St. Johns Hearing Society, St. Johns, NB; King Edward Campus, Vancouver, BC; Services for Hearing Impaired Persons, Saskatoon, SA.

Availability of Oral Interpreters at Institutions

Of the total number of post-secondary institutions that have accommodated deaf/hearing impaired students 35.5% indicated that oral interpreting services were available (Table 14, p. 70). Coincidentally the same number answered "yes" for both oral and sign language interpreters which may suggest that they are unclear about the distinction between the two types of interpretation. A larger number, 49%, provide only sign language interpreters. Presumably in half of the post-secondary institutions that have served the deaf/hearing impaired population this important adjunct to learning is not available. The students so affected would have to cope by speechreading and using their residual hearing. There may also be a heavy reliance on obtaining the information through other sources as well (notetakers, tutors, discussions with other peers and reading).

Availability of Notetakers at Institutions

As explained earlier deaf/hearing impaired students must watch the interpreter to receive the information being presented. In the first case the student must speechread and use their residual

TABLE 14:

TYPE OF INTERPRETING SERVICES

	DEGREE GRANTING		TECHNICAL		VOCATIONAL		ROW TOTAL	
	#	%	#	%	#	%	#	%
SIGN LANGUAGE INTERPRETERS AVAILABLE	12		28		6		46	49.5
ORAL INTERPRETERS AVAILABLE	10		20		3		33	35.5
BOTH SIGN AND ORAL LANGUAGE INTERPRETERS AVAILABLE	10		20		3		33	35.5

Note: n=93
Confusion in answering this question may have resulted in sums of more than 93.

hearing maximally. In the second they read sign language through the manual presentation or speechread an oral interpreter. The deaf/hearing impaired student cannot reasonably take their own lecture notes. For this reason notetakers are used. Just over half (53.8%) of the responding institutions who have served the deaf/hearing impaired stated that notetakers were available (Table 15, p. 72). This represents 62% of degree granting, 53% of technical and 30% of vocational schools. If one combines the figures for respondents who do not have notetaking facilities available with the "no responses" (a total of 46%) a picture is presented of the difficulties faced by oral deaf/hearing impaired and those who rely on signed communication to obtain copies of the information presented in the lecture room.

Twenty-four percent of the institutions have their own notetakers (Table 16, p. 72). At the beginning of the semester hearing students taking the same class as the handicapped student may be asked if any will serve as notetakers. Those selected are often given a brief training period on how to take notes for the deaf/hearing impaired. In other cases professional notetakers may be secured. Both the volunteers and those receiving remuneration are included in the statistics.

A much smaller number (18%) of responding institutions that serve the deaf/hearing impaired students provide services and/or materials to facilitate notetaking. This might include special

TABLE 15:

NOTETAKING FACILITIES

	DEGREE GRANTING		TECHNICAL		VOCATIONAL		ROW TOTAL	
	#	%	#	%	#	%	#	%
NOTE TAKERS NOT AVAILABLE	10		16		4		30	32.3
NOTE TAKERS ARE AVAILABLE FOR HEARING IMPAIRED STUDENTS	21 (61.8%)		26 (53.1%)		3 (30.0%)		50	53.8
NO RESPONSE	3		7		3		13	14.0
COLUMN TOTAL	34	36.6	49	52.7	10	10.8	93	100.0

TABLE 16:

NOTETAKING PROVISIONS

	DEGREE GRANTING	TECHNICAL	VOCATIONAL	ROW TOTAL
	#	#	#	% of n
INSTITUTION PROVIDES THEIR OWN NOTETAKERS	9	12	1	22 25.77
INSTITUTION PROVIDES SERVICES AND/OR MATERIALS TO FACILITATE NOTE TAKING	8	9	0	17 18.3

Note: n=93

copy paper or another student's notes reproduced at no expense to the individual.

Tutoring Services Available at Institutions

Tutoring services are deemed essential by many deaf/hearing impaired students to further their academic gains. The method of communication used by the student, their competence with the English language, the availability and skill of the interpreters, the subject matter and other factors all influence whether or not a student can comprehend the information presented.

It is of importance to note that in some cases tutoring while available, can only be obtained at the deaf/hearing impaired students' expense. For those requiring ongoing assistance the cost could be prohibitive.

Almost half (47.3%) of the responding institutions who have educated deaf/hearing impaired students provide tutoring (Table 17, p. 74). Degree granting and vocational institutions are equally divided between those who do and those who do not however a larger proportion, 51% of technical institutions do assist their handicapped students in this way as opposed to 35% who do not (14% did not respond). The chi square is not significant at [$x^2(1, N = 80) = 0.21549, p>.05$]; (Table 24, Appendix A) when comparing degree granting and technical/vocational post-secondary institutions the availability of tutoring services is not a factor.

TABLE 17:

TUTORING SERVICES

	DEGREE GRANTING		TECHNICAL		VOCATIONAL		ROW TOTAL	
	#	%	#	%	#	%	#	%
NO TUTORING AVAILABLE	15 (44.1%)		17 (34.7%)		4 (40.0%)		36	38.7
INSTITUTION PROVIDES TUTORING SERVICES	15 (44.1%)		25 (51.0%)		4 (40.0%)		44	47.3
NO RESPONSE	4		7 (14.3%)		2		13	14.0
COLUMN TOTAL	34	36.6	49	52.7	10	10.8	93	100.0

Table 18 (p. 76) gives a synopsis of the type of tutoring services provided derived from the description listed by the respondents. Some institutions are recorded more than once because they named more than one type of tutoring. Of particular interest are those who provide interpreter services with tutoring, these are limited to less than 10% of the post-secondary institutions across Canada.

Counselling Services Available at Institutions

Counselling services provided by post-secondary institutions were grouped according to the following: (a) use other facility; (b) service provided but not by a designated counsellor; (c) designated counsellor, use of sign language was not specified; (d) designated counsellor, sign language specified. These are described in Table 19 (p. 77). In some instances institutions responded "the same as for other students", thus a search of academic calendars was then undertaken to provide for more uniform responses. Other institutions replied that they counsel deaf/hearing impaired students using an interpreter if required.

The majority of the responding post-secondary institutions who have educated deaf/hearing impaired students indicated that counselling services are provided by designated individuals who do not use sign language (53%) in the proportions of 67.6% of all degree granting, 49% of all technical and 20% of all vocational institutions (Table 19, p. 77). An interpreter would have to be

TABLE 18:

SOURCE OF TUTORING SERVICES

	DEGREE GRANTING	TECHNICAL	VOCATIONAL	TOTAL	% OF n
TUTORING PROVIDED BY ASSIGNED STUDENT AND STAFF	2	3	1	6	
TUTORING WITH INTERPRETERS	1	8	0	9	9.7
TUTORING PROVIDED ON AD HOC/INDIVIDUAL BASIS	6	7	1	14	
PAID TUTORS	6	9	2	17	
VOLUNTEERS AND/OR PEER TUTORING	6	13	0	19	
TUTORING ARRANGED THROUGH COUNSELLING OR DISABLED TUDENTS OFFICE	7	3	1	11	

Note: n=93
Some institutions recorded more than one source for obtaining tutoring services.

TABLE 19:

COUNSELLING SERVICES

	DEGREE GRANTING		TECHNICAL		VOCATIONAL		TOTAL	
	#	%	#	%	#	%	#	% of n
NO COUNSELLING SERVICE AVAILABLE	0		0		1		1	1.1
INSTITUTION USES ANOTHER FACILITY	2		0		1		3	3.2
COUNSELLING SERVICE IS NOT DESIGNATED TO ANY INDIVIDUAL	0		9		0		9	9.7
COUNSELLING DESIGNATED TO INDIVIDUAL SIGN LANGUAGE NOT SPECIFIED	23	(67.6%)	24	(49.0%)	2	(20.0%)	49	52.7
DESIGNATED COUNSELLOR SIGN LANGUAGE SPECIFIED	1		8		1		10	10.8
NO RESPONSE	8		8		5		21	22.6
COLUMN TOTAL	34	36.6	49	52.7	10	10.8	93	100.0

present for deaf/hearing impaired who rely primarily on sign language to communicate or for those who require oral interpreters. Again the problem of securing the services of an interpreter occurs.

Only 3% of the institutions use outside facilities. In each case the respondents indicated that better services existed elsewhere and at these the deaf/hearing impaired individual would see counselling staff who are familiar with the problems faced by this group. The Canadian Hearing Society, Ottawa, ON; Vocational Rehabilitation Services, Toronto, ON and the Atlantic Centre of Support for Disabled Students located at St. Mary's University, Halifax NS were the three referral agencies cited by respondents. In 10% of institutions the counselling service is not designated to any individual. Eleven percent have counsellors who use sign language. While this seems like an unusually small number, skilled counsellors who are fluent in the second language, ASL may be much more difficult to obtain than the alternative a qualified counsellor who uses the services of an interpreter.

Availability of Apprenticeships and Worksites at Institutions

Obtaining experience in a job prior to employment provides an easier transition into the working world for handicapped students. It allows them to more fully understand the expectations and demands of the position. This can be secured through

apprenticeships, worksites, practicums, part-time and summer jobs in specific work related areas.

Only one-quarter of the responding institutions who have provided for the educational needs of deaf/hearing impaired students have apprenticeships, 35% of all technical schools with 12% of all post-secondary and 20% of all vocational (Table 20, p. 80). Whether a student in this population will have an apprenticeship placement is influenced by the type of post-secondary institutions one chooses to attend, degree granting, technical or vocational. The chi square is significant [x^2 (2, N = 82) = 6.37140, $p<.05$] (Table 24, Appendix A).

The response pattern for worksites is slightly different (Tables 21 and 24, p. 80 and Appendix A). Chi square is significant [$x^2(2, N = 81) = 7.93532$, $p<.05$]; the information does suggest that worksite placements co-occur in some types of post-secondary institutions addressed in this survey. A higher percentage of worksites appear to be available generally (32.3%) in comparison to the number of apprenticeship placements(24.7%) (Tables 20 and 21, p. 80). The distribution shows that 21% of degree granting, 35% of technical and 60% of vocational institutions offer worksites . Overall it seems there are limited opportunities for deaf/hearing impaired students to obtain practical knowledge at worksites.

TABLE 20:

APPRENTICESHIP PLACEMENTS

	DEGREE GRANTING		TECHNICAL		VOCATIONAL		ROW TOTAL	
	#	%	#	%	#	%	#	%
INSTITUTIONS THAT DO NOT PROVIDE APPRENTICESHIP PLACEMENTS	27		26		6		59	63.4
INSTITUTIONS THAT DO PROVIDE APPRENTICESHIP PLACEMENTS	4 (11.8%)	17.4	17 (34.7%)	73.9	2 (20.0%)	8.7	23	24.7
NO RESPONSE	3		6		2		11	11.8
COLUMN TOTAL	34	36.6	49	52.7	10	10.8	93	100.0

TABLE 21:

WORKSITES

	DEGREE GRANTING		TECHNICAL		VOCATIONAL		ROW TOTAL	
	#	%	#	%	#	%	#	%
INSTITUTIONS THAT DO NOT PROVIDE WORKSITES	24		25		2		51	54.9
INSTITUTIONS THAT DO PROVIDE WORKSITES	7 (20.6%)		17 (34.7%)		6 (60.0%)		30	32.3
NO RESPONSE	3		7		2		12	12.9
COLUMN TOTAL	34	36.6	49	52.7	10	10.8	93	100.0

Availability of Audiological and Hearing Aid Services at Institutions

The provision of audiological and hearing aid services for deaf/hearing impaired students is important not only from a financial and educational aspect, but also to save the student long periods in which essential equipment is inoperable. Deaf/hearing impaired students need convenient, readily available hearing assessment facilities but in addition when their own fragile hearing aids and F.M. systems break down they need "loaner" equipment to borrow during repair periods. Sometimes lengthy delays ensue from the time a problem is detected and the equipment sent for repair and returned in working order. While only 13% of institutions offer this service directly an additional 28% arrange for these outside of their program (Table 22, p. 82). One-half of the degree granting, 36% of the technical and 40% of the vocational schools maintain some type of service. One-half of the responding institutions that have trained deaf/hearing impaired students reported no services were available. An additional 10% did not respond to the question. This possibly implies that 60% do not have access to these resources.

On the questionnaire respondents frequently confused "loop systems" with personal frequency modulated (F.M.) systems, which is not altogether surprising since loops are rarely used nowadays in classrooms. Personal F.M. systems have become more popular in

TABLE 22:

AUDIOLOGICAL/HEARING AID SERVICES

	DEGREE GRANTING		TECHNICAL		VOCATIONAL		ROW TOTAL	
	#	%	#	%	#	%	#	%
NO PROVISION FOR AUDIOLOGICAL/HEARING AID SERVICES	15		28		3		46	49.5
AUDIOLOGICAL/HEARING AID SERVICE PROVIDED	5 (14.7%)		5 (10.2%)		2 (20.0%)		12	12.9
INSTITUTION ARRANGES FOR AUDIOLOGICAL/HEARING AID SERVICE OUTSIDE PROGRAM	12 (35.3%)		12 (24.5%)		2 (20.0%)		26	28.0
NO RESPONSE	2		4		3		9	9.7
COLUMN TOTAL	34	36.6	49	52.7	10	10.8	93	100.0

recent years and are portable. Very few institutions indicated that their classrooms are hard wired for sound. A small number said that the occasional room or auditorium was so equipped.

Technical equipment

The technical equipment reported as being available for deaf/hearing impaired students at post-secondary institutions included F.M. systems, testing and charging units, telecaptioning, tape recorders and amplified telephones, with the teletypewriter being (TTY) mentioned most frequently.

General Services/Information

Often responses indicated that students' needs are met on an individual basis. Other general services and information that are provided by post-secondary institutions but not in sufficient numbers to be statistically recorded are included as comments:

orientation and brochures

brochures are available for distribution to staff and faculty; personal F.M. and infrared available for loan; liaison with on/off campus personnel by coordinator.

workshops on various issues, provide meeting space and other facilities.

medical clinic for students.

microcomputer training and access particularly in core subjects.

day care, housing.

registration and timetabling assistance; campus orientation tours, special examination arrangements if required.

transfer to a better equipped college arranged by us.
(quoted directly from comments in the questionnaires)

Extracurricular Activities at Institutions

The social and cultural activities available to deaf/hearing impaired students vary. Many institutions encourage all students to participate in activities and organizations of their choice. However, for many deaf/hearing impaired students lacking in oral communication skills, participation without the assistance of an interpreter is futile and frustrating.

It is advantageous for students to participate in extracurricular activities while attending post-secondary institutions for a more rounded experience. Full participation by hearing impaired students frequently demands the availability of interpreters to facilitate communication and understanding. The Educational Interpreting Program is "designed to assist persons who are deaf or hearing impaired participate fully in community programs through the provision of Sign language interpreters" as stated in an Alberta Advanced Education publication "Guide to Post-secondary Programs for Students with Disabilities (1986). Funding is provided by the Departments of Advanced Education, Manpower and Social Services. The book also clearly states: "Support services to students who are deaf or hearing impaired are not provided for recreational or religious functions" (p. 12). While deaf/hearing impaired students could arrange for this service themselves through

an independent Interpreter Referral Service, funding for remuneration might be difficult to obtain. If this policy exists more widely across Canada, post-secondary institutions and individuals would be unable to recover the costs of providing interpreters for leadership activities and/or organizations, sporting events, religious or social organizations.

This question seemed difficult for most respondents to answer. Therefore, the range of responses for the extracurricular activities has been reported for each type of institution (Table 23, p. 86). Almost half of these institutions (range 37-48) listed the regular programs as being available to all students. It is likely that no restrictions are placed on handicapped students specifically so that all programs of this type in post-secondary institutions are "open" to this population. Of interest perhaps is that 10 to 15 institutions were willing to consider interpreter services in view of the possible funding problems, but these are probably those with their own interpreters and/or who have developed fairly liberal policies with their interpreter referral agencies.

Lack of funding for the provision of interpreters or the unavailability of interpreters generally was most often cited as the reason services are not more available to encourage participation by deaf/hearing impaired students in leadership activities, sports, religious and social organizations in post-

TABLE 23:

EXTRACURRICULAR PROGRAMS

	DEGREE GRANTING		TECHNICAL		VOCATIONAL		TOTAL RANGE
	#	%	#	%	#	%	
NO PROGRAM PROVIDED	0-3		6-13		2		8-18
REGULAR PROGRAM FOR ALL STUDENTS	19-23		16-22		2-3		37-48
INTERPRETERS COULD BE PROVIDED FOR PROGRAMS	2-4		8-11		0-1		10-15
NO RESPONSE	7-8		10-12		4-6		21-26

Note: n=93

secondary educational institutions. Other survey respondents indicated that these experiences were more readily available through the deaf community itself. Frequently the regular programs within the responding post-secondary institutions were mentioned as appropriate outlets. Still others stated that the services of an interpreter had never been requested for these activities but that such a request would be given careful consideration.

The following specific organizations were mentioned by respondents as including facilities and opportunities for deaf/hearing impaired:

1. Leadership: deaf/hearing impaired organization within the Students' Union, St Johns, NB, Amherst, NS, Toronto, ON, Saskatoon, SA, Edmonton, AB; Edmonton Chapter of the Canadian Hearing Impaired Post-secondary Students' Association (C.H.I.P.S.S.A.), Student Associations for the deaf/hearing impaired and Greater Edmonton Disabled Student Association (G.E.D.S.A.) Edmonton, AB and Access McGill, Montreal, PQ.

2. Sports: Canadian Association of Disabled Skiers (teaches deaf/hearing impaired skiers through sign language), Halifax, NS; intramural and intercollegiate team sports, Sudbury, ON and special sports program for deaf/hearing impaired, Halifax, NS.

3. Religious: Ecumenical Ministry of the Deaf, Halifax, NS; Campus Ministry, Ottawa, ON; Christian Fellowship Club for

deaf/hearing impaired, Saskatoon, SA and community churches in a number of cities.

4. Social: Access Group, Montreal, PQ is primarily made up of disabled students who are socially and politically active and Awareness Carleton, Ottawa, ON.

Summary of Results

This study was designed to determine the services, facilities and resources available for deaf/hearing impaired students in post-secondary institutions in Canada. Clearly this population is educationally, and therefore vocationally disadvantaged with a much smaller proportion achieving higher education compared to their normally hearing peers (Table 4, p. 45). Just over half of the responding institutions had deaf/hearing impaired students registered (Tables 2 & 3, p. 40 & 42).

Restrictive admission requirements precluded admissions officers or registrars having sufficient latitude to assess each case individually. Less than 30% of post-secondary institutions have an open enrollment policy which provides the usual umbrella under which deaf/hearing impaired students may be admitted to post secondary institutions (Table 7, p. 55). When degree granting and technical/vocational institutions who had served this population were compared, significant differences were found in their admission requirements. English language requirements often present an obstacle that further restricts entrance. Results of

the survey determined that the type of institution is not a factor in whether or not English language requirements will be relaxed for deaf/hearing impaired students (Tables 8 & 24, p. 58 & Appendix A).

For an optimum success rate deaf/hearing impaired students require support services including interpreters, notetakers, tutors and counsellors (Bevilaeque & Osterlink, 1979; Stilwell & Schulker, 1973; Vaughn, 1967). While tutors are available in 47% of post-secondary institutions, notetakers are slightly more common, being provided in 54% (Tables 15 & 17, p. 72 & 74). Interpreter services are available in less than half of the post-secondary institutions (Table 12, p. 65). A correlation was found in the availability of interpreters when degree granting and technical/vocational institutions were compared. Only 11% of all institutions have counsellors who are skilled signers. The majority use designated counsellors with the use of interpreters not specified (Table 19, p. 77).

There appeared to be a trend that special classes for deaf/hearing impaired students are more likely to be available in certain types of post-secondary institutions when degree granting and technical/vocational institutions were compared. However, few special programs are available for deaf/hearing impaired students and classes offered in sign language are even less common (Table 11, p. 63). Participation in extracurricular activities is

difficult for many as interpreter services are provided by a very small number of post-secondary institutions (Table 23, p. 86).

The Year of the Disabled, 1981 helped to increase public and government awareness of the plight of disabled Canadians. As a result, some new special programs for deaf/hearing impaired students may have begun (Table 6, p. 52). With the infusion of federal and provincial grant money three centres have been established in Canada for the purpose of studying disabled students. They are located in Halifax, NS, London, ON and Edmonton, AB. The one at the University of Alberta is specifically devoted to the study of hearing impairments.

Canadian post-secondary institutions have made a good beginning. Services, facilities and resources to assist deaf/hearing impaired students cope educationally and therefore enhance their employment opportunities seem to be more readily available. It is urgent that a stable source of income be provided that this progress may continue.

CHAPTER 5

DISCUSSION

The sampling of post-secondary institutions in this survey was not randomly selected but included those that were most likely to receive admissions applications from deaf/hearing impaired students. Two deaf adults who are familiar with the problems faced by this population defined the institutions selected. Despite this, less than 54% of the responding institutions indicated that they had deaf/hearing impaired students enrolled. The percentage of the institutions serving these students increases to 65.5% when those who had previously enrolled deaf/hearing impaired students are included, and to 70% when those planning to accommodate these students in the future are added (Table 3, p. 42).

Many post-secondary institutions indicated that they were unaware of receiving applications from or having deaf/hearing impaired enrolled on their campus. Those reported in this survey may represent only 25 to 50% of actual numbers. As previously discussed it is unconstitutional to request this information on application forms. It may not be feasible for all post-secondary institutions to accommodate deaf hearing impaired students and many factors are involved in providing the necessary facilities to assist these students. It does, however, appear that an insufficient number of post-secondary institutions in Canada are enrolling deaf/hearing impaired students. Also it may be that the 21.8% of post-secondary institutions surveyed that did not respond

to the questionnaire felt little committment to do so because they were unfamiliar with the needs of deaf/hearing impaired students.

Post-secondary institutions responding to the survey questionnaires estimated that there were 352 full-time and 177 part-time deaf/hearing impaired attending campuses in canada (Table 4, p. 45). Of these one-half were attending technical institutions. These numbers do not represent all of the deaf/hearing impaired post-secondary students in Canada but do give some indication of the level of service. Using 1985 Statistics Canada data the number of full-time students (352) represent from 0.021 to 0.056% of the deaf/hearing impaired population depending upon the estimated total number of deaf/hearing impaired in Canada (634,000 to 1,700,000). This compares to 3.1% of the total population attending post-secondary educational facilities on a full-time basis. Even allowing for underestimate of up to four times the reported attendance the numbers of deaf/hearing impaired who enroll in post-secondary education in Canada is appallingly low.

One of the questions facing educators is how to improve equal opportunities for deaf/hearing impaired people. According to Sanderson (1982) and Phillips (1975a) serious underemployment is a major life problem. Because the majority of deaf/hearing impaired achieve normal physical development, mobility and intelligence they do find employment but at a level significantly below their

capabilities. Underemployment is particularly frustrating to those of average intelligence or better. Job advancement is frequently plateaued in a way which would not occur if they could hear. Phillips (1975a&b) during on-site visitations of 33 firms in the Rochester, New York area found that employers were reluctant to place deaf/hearing impaired workers in positions of a supervisory nature. In addition job opportunities were more likely in work oriented toward data and things rather than people.

The survey questionnaire did not define apprenticeship and worksite but a general assumption might be that an "apprenticeship" requires work related training prior to receiving a diploma and a "worksite" furnishes additional benefit to the student in finding work in their field of study. This work may be paid or unpaid. Statistical significance was found indicating that the type of institution is related to whether apprenticeship and worksites will be available (Tables 20, 21 and 24, p. 80 & Appendix A).

Thirty-five percent of technical institutions stated that they provided apprenticeships and worksites. Sixty percent of vocational institutions however indicated that they provide worksites. In view of Schein's (1977) findings that demonstration as opposed to explanation or mere advice is more effective in assisting deaf/hearing impaired to assimilate information and learn habilitative skills, post-secondary institutions offering on-the-

job training should make this aspect known through advertising and in their calendars.

The survey indicated that fewer than 10% of degree granting institutions accepted students with less than grade 12 but 73.5% of technical and 55% of vocational institutions do. Sixty-two percent of degree granting institutions have open enrollment (Table 7, p. 55). Special entrance standards for deaf/hearing impaired students could ease the pressure on this disadvantaged population by increasing the numbers admitted to post-secondary institutions. On the other hand the trend may be toward more stringent entrance requirements. The University of Alberta for example has increased admission standards to a minimum 70% average in required grade twelve courses for many faculties including Education where previously a 60% and later a 65% average was acceptable. Open enrollment may provide a partial solution by allowing admittance officers lee-way in decision making regarding individual students.

A review of institutional responses and write in comments on the questionnaire suggested that many of the technical and vocational post-secondary institutions do provide for high school accreditation or a qualifying period prior to students' admittance into their desired field of study. Deaf/hearing impaired students admitted with less than the required academic subjects need such support and an accommodating curriculum to achieve their goals.

English is a second language for many deaf/hearing impaired students (Vernon & Koh, 1970). As explained previously even for those who are orally trained the nuances and structures of English are difficult to learn because of their hearing loss. The majority of responding post-secondary institutions 52.7% (64.7% of degree granting, 42.9% of technical and 60% of vocational) make no allowance for the English language problems of deaf/hearing impaired students; thus precluding entry for many (Table 8, p. 58). There was no statistically significant relationship found between the type of institution and whether or not English admission requirements would be relaxed for the deaf/hearing impaired.

Post-secondary educational training programs that successfully integrate deaf/hearing impaired students into an environment that normally serves the hearing have support services for their deaf/hearing impaired students. The supportive services generally include counselling, interpreting, notetaking and tutoring. Preparatory and extracurricular programs, job placement and follow-up may also be available. Financial assistance to these institutions is imperative (Perspectives on deafness in higher education 1983, Watson 1976, St. Paul Technical/Vocational Institute 1974). According to this survey less than 50% of the responding institutions were knowledgeable about special financial assistance available to assist deaf/hearing impaired students, and

general awareness of VRDP funding needs to be emphasized for both institutions and students (Tables 9 & 10, p. 61).

Had the question regarding special funding been more specifically worded and VRDP named, the responses may well have shown a different pattern with a larger percentage of respondents aware of and recommending this funding source for their disabled students. Over 80% of the respondents did indicate some source of financial assistance usually the provincial/federal student loans that are generally available to all post-secondary students. (Table 10, p. 61). Special funding is frequently tied to the student and depends on acceptance into a program of studies. Problems then arise in the lack of preparation of handicapped students, and the necessary services may not be in place for the year in which the student is registered. Conversely if people are hired in anticipation of students' needs, and the deaf/hearing impaired student(s) fail to materialize or drop out of programs part way through the year there may be a difficulty paying these employees. At present skilled counsellors, interpreters, notetakers and tutors for the deaf/hearing impaired are scarce. With little job security this situation is unlikely to change. A stable source of funding available to post-secondary institutions who serve deaf/hearing impaired students is necessary. Without it, it will be difficult to develop better and more extensive programming.

Special classes for deaf/hearing impaired students and classes conducted in sign language provide an ideal learning environment for those deaf/hearing impaired skilled in sign language. These classes are, however, a rarity; only 12% of institutions reported the former and 9% indicated the latter. There may be a trend that special classes are more likely to be offered in technical/vocational institutions (Tables 11 & 24, p 62 & Appendix A).

Interpreting services are essential if any others than those few who speechread exceptionally well are to benefit from classroom instruction. As mentioned previously, speechreading is impossible for some deaf/hearing impaired to master. Sign language interpreters are required for those who communicate using sign language and oral interpreters are desirable for those who communicate using this medium. Forty-seven percent of the responding post-secondary institutions indicated that interpreting services were available while 37% indicated they were not (Table 12, p. 65). A further breakdown using Table 13 (p. 67) noted that in 27% of post-secondary institutions deaf/hearing impaired students requiring interpreters would have to arrange for their own. Only 16% of the post-secondary institutions maintained interpreters on staff.

No statistically significant differences were found between post-secondary institutions who have enrolled deaf/hearing impaired

students and whether notetakers will be available to help this population. According to the survey, 62% of degree granting institutions provide notetakers, with technical and vocational responding with 53% and 30% respectively (Table 15 & 24, p. 72 & Appendix A). One might speculate that there is a higher reliance on the lecture method in the technical institutions and, possibly, more hands-on learning in the vocational schools. Whether notetakers are paid or volunteer, experienced or inexperienced, problems do exist. Illegible handwriting, poor copies and the differences in perception as to what individuals consider important to record are only a few. Nevertheless, because their communication mode is visual, notetakers are vital to the deaf/hearing impaired students if their full attention is to be given to the lecturer or interpreter. Extension of this service is required.

With tutoring, new vocabulary and information presented in the various courses can become familiar, the language deficit common to most deaf/hearing impaired students and the educational gaps can be minimized. Those who would otherwise fail can be helped to success. Less than 50% of the responding institutions provided tutoring, 44% of degree granting, 51% of technical and 40% of vocational (Table 17, p. 74). The methods of delivery in order of preference by the post-secondary institutions were: volunteer and/or peer tutoring, paid tutors, an ad hoc or individual basis,

tutoring arranged through counselling or the disabled student office, tutoring using interpreters and tutoring provided by assigned student and staff. Some institutions have more than one method of service delivery. Others did not specify. The "cadillac" system of providing tutoring with interpreters was recorded by only 1 of 34 (3%) degree granting and 8 of 49 (16%) technical institutions (Table 18, p. 76). The financial constraints borne by post-secondary institutions would likely make less expensive tutoring services more desirable, and economies of scale would suggest that post-secondary institutions with greater populations of deaf/hearing impaired students could provide more and better facilities.

Counselling services needed by the deaf/hearing impaired students cover the full range of those required by their hearing peers; however, the problems may differ slightly. In a personal interview July 8, 1988, Maxine Crooks, a psychologist with Student Counselling Services, University of Alberta, Edmonton, AB, explained that communication barriers can exist because of the deaf/hearing impaired student's limited English language skills or poor comprehension of sign systems the counsellor may have learned whether ASL, Seeing Essential English, Signed English, fingerspelling or some other method of derived English. Depending upon the relationship between the interpreter and the client, the client may be reluctant to share significant personal information

with the interpreter for relay to the counsellor. Conversely if the interpreter is provided by the institutional counsellor this may contribute to difficulty in establishing rapport between client and counsellor. These comments are supported by Sanderson (1982). He further suggested that the deaf/hearing impaired students are often members of a sub-culture whose major bond is their deafness. Their values and mores may differ from those of the larger culture. The counsellor being unfamiliar with the value systems of the different culture may be unable to assist the deaf/hearing impaired student. Although the majority, 53%, had designated counsellors only 11% of the respondents indicated that a counsellor who knew and used sign language was available, most of these (8 of 10) were technical institutions (Table 19, p. 77).

Special programs for deaf/hearing impaired students often ease the transition into a full academic program. While no statistically significant differences were found, the trend may indicate that the presence of special programs is more likely in some types of post-secondary institutions. Forty-five percent of technical institutions were likely to provide these with 23.5% of degree granting and 20% of vocational institutions also offering this assistance (Table 5 & 24, p. 50 & Appendix A). It was not determined whether these special classes involved preparatory classes toward grade 12 completion or post-secondary readiness and further research is required to determine how far Canadian post-

secondary institutions have moved in the provision of these services. The Year of the Disabled clearly impacted on what programs were made available for deaf/hearing impaired (Table 6, p. 52), but the cost of providing extra services may be too high if the numbers of students is low.

CHAPTER 6

LIMITATIONS

Problems Related to the Sampling Method

Random sampling was not used to select the post-secondary institutions to whom questionnaires were sent. Instead two deaf adults selected those more likely to have received applications from and served deaf/hearing impaired applicants. This may have biased the overall picture to make it appear more positive than it really is. Furthermore, the responses included only institutions who responded to the questionnaire. The non-participants might have provided alternate insights. Those who failed to respond might have done so because they had little experience with the targeted student population. Therefore, generalizations made from the results of this study should be approached with caution.

Problems Related to the Questionnaire

Some selected questions were interpreted in various ways by different respondents. This problem and the open-ended questions made coding the responses more difficult than on the yes-no question types. A small pilot study might have alleviated some of these problems.

It was difficult in some cases to get the desired information. Despite the original and follow-up letters, some post-secondary institutions may have failed to understand the importance of reporting their statistics and responding to the questionnaires. The sending of questionnaires written in English to predominately

French post-secondary institutions possibly resulted in a poorer rate of return. The effect of this could have been reduced by sending questionnaires written in French to this selected group.

Suggestions for Further Research

Further study of Canada's post-secondary institutions' services and facilities for deaf/hearing impaired students should be undertaken with follow-up to obtain and maintain up to date information. It would be advantageous if: (a) the sample was randomly selected or alternately a census undertaken of all post-secondary institutions with questionnaires available in English or French, (b) adequate funding for the survey/census be secured to enable adequate data collection methods, (c) the design of the study should be clearly laid out at the outset to enable continuity in procedures, (d) a small pilot study should be conducted to ensure that the questions posed clearly address the relevant issues.

Further research is required in the field of deafness and hearing impairment. Specific information is required to determine: (a) How does the lack of funding affect support services for the deaf/hearing impaired students? (b) What are the active admission procedures employed and also how many students are screened out and do not attend post-secondary education? (c) On what basis do successful candidates actually gain admission to post-secondary institutions? (d) What is the retention rate for successful

students and how many continue to graduation? (e) How can a national coordinating policy among institutions be developed and also a general admissions policy for use within individual post-secondary institutions to serve the deaf/hearing impaired students? (f) What are the ways to improve opportunities for handicapped students in the labour market?

Implications for Provincial and Federal Governments

A reliable consistent funding source should be made available to post-secondary institutions serving or attempting to serve deaf/hearing impaired students in order to establish and maintain required special programs, services and facilities. In addition the expenses for individual students must be addressed with recognition of additional costs incurred by both the student and institutions.

There are currently three research centres in Canada that are devoted to the study of disabled students and one, the University of Alberta specializes in the problems associated with hearing impairment. The centres are at St. Mary's University, Halifax, NS, University of Western Ontario, London, ON, and the University of Alberta, Edmonton, AB. These centres should be encouraged to grow to serve as research leaders, resources, information disseminators and coordinators for post-secondary institutions and individuals seeking information about the education of deaf/hearing impaired individuals. Presumably Eastern, Central and Western Canadian

needs can be served through centralizing these services. Periodic evaluations should be conducted to ascertain whether this is sufficient or whether more centres are required.

Many of the post-secondary institutions did not know if deaf/hearing impaired students had applied to or attended their campuses. Encouraging the use of application forms that include a voluntary disclosure of deaf/hearing impaired needs could help alleviate this problem, heighten admittance officers awareness and allow them to initiate procedures to assist affected individuals.

Greater public awareness of the problems faced by deaf/hearing impaired individuals is needed. More specifically their educational and vocational plight should be addressed to allow deaf/hearing impaired people to reach their full potential. Provincial and Federal government support is also necessary to heighten public awareness.

Implications for Post-secondary Institutions

Post-secondary institutions must determine methods of evaluating deaf/hearing impaired applicants that indicate what the student does rather than does not know. Course requirements should be limited to skills that are genuinely needed by these students to perform the task or achieve the educational goals embedded in the course work. The need for English competency should be evaluated against the same criteria. The acceptance of ASL as a second

language for faculties requiring two languages for entrance should also be adopted.

If post-secondary institutions are unable to provide upgrading opportunities themselves then deaf/hearing impaired students refused admittance on these grounds should be channeled or advised of other institutions who can and do provide grade 12 upgrading or adult basic education courses. Post-secondary institutions enrolling deaf/hearing impaired students should encourage their success by providing the support services they require including interpreting, notetaking, tutors, qualified counsellors knowledgeable about problems encountered by this population and information on special funding sources. Support services for students and staff should be in place at the beginning of the school year. On going evaluation of the students' progress should be monitored to facilitate their success and to provide indicators for required changes to services and facilities.

The calendars published by post-secondary institutions should clearly indicate the types of services that are available for handicapped students.

Implications for Counsellors of the Deaf/Hearing Impaired

The goal for successful counselling is not necessarily to train deaf/hearing impaired people to be counsellors, but also to raise hearing counsellors consciousness and skills in working with this population. The qualified counsellor's awareness of the

hearing world and understanding of the general community will allow the deaf/hearing impaired student to integrate by providing or facilitating the appropriate support services and facilities, whether the problem is academic/educational, vocational, psychological or social.

Counsellors should, within the post-secondary institution and greater community, promote growth in the awareness and understanding of the strengths, unique problems and needs of the deaf/hearing impaired students, their cultural and language differences. They should also foster accurate perceptions and comprehension of the expectations of the hearing community of the handicapped student.

A designated counsellor who works only with disabled students must guard against creating a ghetto-like attitude in the students and encourage the handicapped students to use facilities and services that are generally available to all students.

Implications for Deaf/Hearing Impaired Students

In pursuing appropriate advanced educational placement opportunities, deaf/hearing impaired students must avail themselves of the information that is available from post-secondary institutions. By informing the institution prior to registration of any disabilities, institutions can attempt to have the appropriate services and facilities in place for school opening. To encourage greater public and government awareness deaf/hearing

impaired students need to be more politically active. The special problems and needs experienced, the necessary equipment, the required services and facilities to meet educational expectations must be conveyed to the media. A greater openness with other hearing students and increased participation in extracurricular events also encourages peer awareness.

Early recognition of existing problems and seeking solutions quickly, facilitates success. This in turn promotes a more positive attitude within post-secondary educational institutions, instructors, staff and other students.

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APPENDIX A

STATISTICAL SUMMARY OF TABLES

APPENDIX A

TABLE 24 STATISTICAL SUMMARY OF TABLES

	N	chi-square	d.f.	probability
SPECIAL PROGRAMS (TABLE 5)	87	5.12207	2	0.0772
ADMISSION REQUIREMENTS (TABLE 7)	85	40.04835	2	0.0001
ENGLISH ADMISSION REQUIREMENTS (TABLE 8)	78	2.73392	2	0.2549
SPECIAL CLASSES (TABLE 11)	85	3.10314	1	0.0781
INTERPRETING SERVICES (TABLE 12)	79	6.03102	1	0.0141
TUTORING SERVICES (TABLE 17)	80	0.21549	1	0.6425
APPRENTICESHIP PLACEMENTS (TABLE 20)	82	6.37140	2	0.0413
WORKSITES (TABLE 21)	81	7.93532	2	0.0189

APPENDIX B

LETTERS AND QUESTIONNAIRES

First letter to selected sample

Second letter to selected sample

Questionnaire

University of Alberta
Edmonton
Canada T6G 2G5

Department of Educational Psychology
Faculty of Education
6-102 Education North. Telephone (403) 432-5245

July 10, 1985

To Whom It May Concern:

The Association of Canadian Educators of the Hearing-Impaired (ACEHI) Journal, in conjunction with the Western Canadian Centre of Specialization in Deafness (WCCSD), is in the process of developing a special issue on post-secondary access for hearing-impaired students in Canada in the very near future. In this issue or supplement we hope to include a directory of post-secondary programs which provide services or facilitate access for hearing-impaired students.

We need your assistance in gathering information for this project, and would be grateful if you would consider completing the attached questionnaire. Enclosed please find a self-addressed envelope for returning the questionnaire.

We would appreciate receiving your completed returns as soon as possible - no later than September 15, 1985. After that date we cannot guarantee that you will be included in the directory. If you have any questions or concerns, please do not hesitate to contact us by mail or phone (TDD 439-4558 or Voice 432-5213).

Yours faithfully,

M. Rodda

Dr. Michael Rodda
Editor, ACEHI Journal

Enclosures
c.c. Editorial Board

University of Alberta
Edmonton
Canada T6G 2G5

Western Canadian Centre
of Specialization in Deafness
Department of Educational Psychology
6-102 Education Centre North
Telephone (403) 432-4558 TDD/Voice

1985 17 12

TO WHOM IT MAY CONCERN:

The Association of Canadian Educators of the Hearing-Impaired (ACEHI) Journal, in conjunction with the Western Canadian Centre of Specialization in Deafness (WCCSD), is in the process of developing a special issue on post-secondary educational access for hearing-impaired students in Canada. Research in this area is important to both post-secondary institutions for future planning, funding and utilizing of existing special services and for community awareness of these programs.

We request your assistance in gathering information to include in a national directory of post-secondary programs which provide services or facilitate access for hearing-impaired students. This directory will not only be a benefit to hearing-impaired students but also those institutions who will have their facilities publicized. The outcomes of this study will also be made available to all participating institutions.

With reference to our previous letter of July 10, 1985 we would appreciate your prompt attention in completing the request for information. In case you have misplaced our questionnaire we have enclosed a second copy for your convenience. We would appreciate your returning the questionnaire even if you have no relevant information. Please indicate this on the questionnaire.

If we can be of assistance in any way please do not hesitate to contact us by mail or phone (Voice 403-432-5213 or TDD 403-432-4558).

This project is of great importance to hearing-impaired students. We wish to thank you in advance for your prompt attention to this matter.

Yours sincerely

Michael Rodda

Michael Rodda
Editor, ACEHI Journal

gm

Enclosures

cc: Editorial Board

JOINT A.C.E.H.I. - W.C.C.S.D. POST SECONDARY SURVEY

NAME AND POSITION OF PERSON COMPLETING QUESTIONNAIRE:

_____

PHONE NUMBER: _____

ARE YOU THE CONTACT PERSON IN THIS AREA?

YES_____ NO_____

IF NOT, PLEASE IDENTIFY THE APPROPRIATE PERSON AND POSITION:

_____

1. NAME OF INSTITUTION _____

2. TYPE OF INSTITUTION _____

3. ACCREDITATIONS/DEGREES/DIPLOMAS GRANTED BY YOUR INSTITUTION:

_____

_____

_____

4a. DOES YOUR INSTITUTION HAVE ANY DEAF OR HARD-OF-HEARING STUDENTS ENROLLED (OR DID HAVE THEM IN THE PREVIOUS TERM)?

YES_____ NO_____

4c. IF "YES", HOW MANY?

FULL TIME_____ PART TIME_____

(PLEASE GO ON TO QUESTION #5)

4c. IF "NO", DID YOUR INSTITUTION SERVE THEM IN THE PAST?

YES_____ (PLEASE GO ON TO QUESTION #5)

NO_____ (PROCEED TO THE NEXT QUESTION)

4d. IF "NO", ARE THERE ANY PLANS TO SERVE THEM IN THE IMMEDIATE FUTURE?

YES_____ NO_____ (PLEASE STOP HERE AND RETURN THE QUESTIONNAIRE TO US)

4e. IF "YES", PLEASE DESCRIBE THEM BRIEFLY:

5a. ARE SUCH STUDENTS SERVED THROUGH A SPECIAL PROGRAM?

YES_____ NO_____(PLEASE GO ON TO QUESTION #6)

5b. IF "YES", PLEASE DESCRIBE PROGRAM BRIEFLY (OR ATTACH BROCHURE):

5c. YEAR SPECIAL PROGRAM ESTABLISHED_____

6a. ADMISSION REQUIREMENTS:

6b. DOES YOUR INSTITUTION MAKE ALLOWANCES FOR THE ENGLISH ADMISSION REQUIREMENTS FOR HEARING IMPAIRED STUDENTS?

YES_____ NO_____

6c. IF "YES", PLEASE DESCRIBE:

7a. IS SPECIAL FINANCIAL ASSISTANCE AVAILABLE TO HEARING IMPAIRED STUDENTS?

YES_____ NO_____

7b. IF "YES", PLEASE DESCRIBE:

SPECIAL SERVICES

8a. DOES YOUR INSTITUTION PROVIDE TUTORING SERVICES FOR HEARING IMPAIRED STUDENTS?

YES_____ NO_____

8b. IF "YES", PLEASE DECSRIBE THEM BRIEFLY:

9a. DOES YOUR INSTITUTION PROVIDE SPECIAL CLASSES FOR HEARING IMPAIRED STUDENTS?

YES_____ NO_____

9b. IF "YES", PLEASE DESCRIBE THEM:

9c. ARE ANY OF THESE CLASSES CONDUCTED IN SIGN LANGUAGE BY THE INSTRUCTOR?

YES_____ NO_____

10a. ARE INTERPRETING SERVICES AVAILABLE TO YOUR INSTITUTION?

YES_____ NO_____

10b. IF "YES", PLEASE CHECK ALL THOSE THAT APPLY:

WE HAVE INTERPRETERS ON STAFF _____

WE CONTRACT OUT FOR INTERPRETERS _____

WE ARRANGE FOR FREE-LANCE INTERPRETERS AT NO COST TO US VIA:

_____ _____
(NAME OF AGENCY)

THE STUDENT ARRANGES FOR HIS/HER OWN INTERPRETER _____

10c. TYPE OF INTERPRETING SERVICES AVAILABLE:

ORAL ONLY_____

SIGN LANGUAGE ONLY_____

BOTH_____

11a. ARE NOTETAKERS AVAILABLE IN YOUR INSTITUTION?

YES_____ NO_____

11b. IF "YES", PLEASE CHECK ALL THOSE THAT APPLY:

WE HAVE OUR OWN NOTETAKERS _____

WE PROVIDE SERVICES AND/OR MATERIALS TO FACILITATE NOTETAKING (EXAMPLES: CARBON PAPER, PHOTOCOPIES) _____

COUNSELLING

12a. DO THE COUNSELLORS KNOW AND USE SIGN LANGUAGE WITH THEIR CLIENTS?

YES____ NO_____

12b. WHAT TYPE OF COUNSELLING IS AVAILABLE TO HEARING IMPAIRED STUDENTS? (PLEASE DESCRIBE)

APPRENTICESHIP

13a. DOES YOUR INSTITUTION PROVIDE APPRENTICESHIP PLACEMENTS?

YES_____ NO_____

13b. DOES YOUR INSTITUTION PROVIDE WORK SITES?

YES_____ NO_____

TECHNICAL SERVICES

14. DOES YOUR INSTITUTION PROVIDE AUDIOLOGICAL/HEARING AID SERVICES?

YES_____ (PLEASE DESCRIBE THE SERVICES AVAILABLE)

NO_____

NO, BUT WE ARRANGE FOR SUCH SERVICES OUTSIDE OUR PROGRAM _____

15. DOES YOUR INSTITUTION PROVIDE LOOP SYSTEMS?

YES_____(PLEASE DESCRIBE THE SERVICE AVAILABLE)

NO_____

NO, BUT WE ARRANGE FOR SUCH SERVICES OUTSIDE OUR PROGRAM_____

OTHER SERVICES

16. PLEASE GIVE DETAILS OF ANY OTHER SPECIALIZED SERVICES FOR HEARING IMPAIRED STUDENTS PROVIDED BY YOUR INSTITUTION:

SOCIAL AND CULTURAL ACTIVITIES FOR HEARING IMPAIRED STUDENTS

17. PLEASE LIST ALL ACTIVITIES WHERE HEARING IMPAIRED STUDENTS CAN FULLY PARTICIPATE. INDICATE IF INTERPRETING IS AVAILABLE FOR EACH.

a) LEADERSHIP ACTIVITIES/ORGANIZATIONS

b) SPORTS

c) RELIGIOUS ORGANIZATIONS

d) SOCIAL ORGANIZATIONS

THANK YOU VERY MUCH!